THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
The Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · THE RAILWAY RECORD.
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DIESEL RAILWAY TRACTION SUPPLEMENT

The December issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, will be ready on December 1, price 1s.*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list, and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays 9.30 a.m. till 4.45 p.m.

The office is closed on Saturdays.

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

The Prime Minister on Controls

IN the House of Commons on November 16 the Prime Minister outlined the Government attitude on controls. He emphasised that in the interim period between the defeat of Germany and the victorious conclusion of the war with Japan it would be possible and necessary to turn over an increasing part of our resources to civilian production, to restoring our export trade, and re-equipping our industries. He stated that many wartime controls would be as necessary in that period as at present, and specifically included those on transport, with raw materials, industrial activity, agriculture, and food. Relaxation would be possible, however, and would be made so far as possible as circumstances permitted, and in an orderly manner. The governing consideration in every case should be the public interest. Mr. Churchill's statement did not carry knowledge much further, and from the viewpoint of industry is disappointing. On the same day a White Paper was issued modifying earlier proposals for regulating the use of manpower. If definite action can be taken on labour, equally well-defined pronouncements to other aspects of industrial requirements such as premises, machine tools, raw materials, finance, and direction of trade, should be possible. How much more practical is the outlook in the United States, where a beginning has been made on freeing industry for normal production and subsidies for certain exports have been announced. With such a lead industry can begin to plan ahead. Without specific guidance on the duration and likely changes in controls it must remain in the dark as to its future.

Mr. J. H. Van Deventer's Views on British Trade

Mr. J. H. Van Deventer, President & Editorial Director of the American publication *The Iron Age*, recently visited this country, and before his return to the United States contributed an article to *The Iron & Coal Trades Review*, in the course of which he expressed the conviction that Great Britain must continue to be primarily an exporting nation. He found among industrialists and business men a somewhat defeatist spirit as to the possibilities of post-war export trade, based largely on the thought that the United States, with its large plant capacity, would be a serious competitor for world trade. Mr. Van Deventer considers that this feeling is ill-founded. Responsible persons in the United States wish to see a prosperous Great Britain, because it is realised that otherwise America's prosperity will be short-lived. American exports have never exceeded 10 per cent. of total production. In the extremely unbalanced condition of exchange which will persist until the world is again on its feet, it is inevitable that exports and imports will be regulated by Governments, and it is unlikely that dumping of goods abroad will be permitted. Mr. Van Deventer suggests that the superior efficiency of American production is restricted to mass-produced products where demand is such as to permit of integrated mechanisation. On small lots, as for example machine tools, British costs are but 50 per cent. of American, type for type.

Railway Air Services

Since the beginning of the war the internal air lines in Great Britain have been confined to sections crossing the sea, so that, although through air services had been operated between London and Belfast by Railway Air Services Limited, for five years passengers to Northern Ireland have had to travel by rail to Liverpool and board the aircraft there. The new R.A.S. service between London and Liverpool, which was begun last week, is the first civil air service between the two cities since the outbreak of war, and enables passengers to travel between Croydon and Belfast in 3½ hr., despite the introduction of security formalities during the stop at Speke Airport, Liverpool. Passengers taking return tickets can exchange these to make the return journey by steamer and rail, and obtain a refund of the difference due to them. Alternatively, passengers in possession of the return halves of rail and steamer tickets between the points covered by the air services can return by air (subject to accommodation being available) on payment of a supplement. This is a feature of railway-associated air services which should become increasingly popular when further progress can be made with the operation of the intended 34 internal air lines. The first flight between Croydon and Liverpool was made by a four-engined 10-seat de Havilland 86, which was the first civil air line aircraft to leave the London area on its normal business since the war began. The intention of Railway Air Services is to adopt British-built 12-seaters, with a cruising speed of 160 m.p.h. and a load of 15,000 lb. for shorter journeys, and 25-seat craft with a cruising speed of 200 m.p.h. and a carrying capacity of 30,000 lb. for longer journeys.

Air—Rail—Road—Sea Co-ordination

Sir Harold Hartley, Chairman of Railway Air Services Limited, and Vice-President of the L.M.S.R., presided at an inaugural luncheon at the Adelphi Hotel, Liverpool, in connection with the resumption of London—Liverpool air line workings, and made reference to the plan of the British railways to operate without subsidy a comprehensive post-war network of air services, both in this country and to the Continent. He said that the railway companies attached great importance to the co-ordination of surface and air travel, and had made it plain to the Government that they had offered partnership to all shipping companies which had unity of interests with the railways. Already, a number of shipping companies had availed themselves of the offer. The railway companies had made a similar offer to internal air line operators who were not previously associated with them. They wanted to bring in all the experience they could, so that everything possible was done to guarantee the efficiency of their services, and, in order to give the public the best possible service, they should be able to give them co-ordinated air, rail, road, and sea transport. "With the shipping companies joining us," said Sir Harold, "and with our air powers, our big organisation of docks, harbours, and hotels, and the resources of Thomas Cook & Son Limited, we feel that the railways have something to offer in the way of co-ordination which no one else can give in the same measure."

Overseas Railway Traffics

Prices of the stocks of British-owned railways in Argentina have continued to benefit from Sir Montague Eddy's statement as to the new arrangements with the Argentine Government, especially with respect to the improved exchange for remittances. Debenture issues were the most favoured, although the junior stocks also rose slightly. More recently, however, there has been some dullness in this market, without much tendency to sell. Traffic receipts in the 18th and 19th weeks of the financial year have been generally good. The increases shown in the two weeks have been £43,500 on the Buenos Ayres & Pacific, £38,472 on the Central Argentine, £19,320 on the Buenos Ayres Western, £9,840 on the Buenos Ayres Great Southern, £5,496 on the Argentine North Eastern, and £3,846 on the Entre Rios. Great Western of Brazil traffics continue to go ahead, making the aggregate increase to date in 1944 £231,600. There has been a slight setback on the Leopoldina in the past fortnight, but its aggregate is still £518,161 up.

	No. of week	Weekly traffics £	Inc. or dec. £	Aggregate traffic £	Inc. or dec. £
Buenos Ayres & Pacific*	19th	127,200	+ 22,800	2,220,960	+ 429,060
Buenos Ayres Great Southern*	19th	183,660	+ 8,040	3,164,880	+ 213,540
Buenos Ayres Western*	19th	63,840	+ 7,860	1,235,460	+ 248,460
Central Argentine*	19th	166,441	+ 12,366	3,218,595	+ 582,576
Canadian Pacific	44th	1,243,000	+ 25,000	54,465,800	+4,775,200

* Pesos converted at 16⅔ to £.

A series of decreases on the Antofagasta has brought its aggregate increase for the first 45 weeks of 1944 down to £3,100.

London Transport Public Relations

We record briefly on another page that Mr. F. Scothorne, who has served the London County Council and the London Passenger Transport Board for 41 years, is retiring today. Since 1939 he has been Joint Public Relations Officer (with Mr. W. P. N. Edwards) and during the war has had to assume responsibility for both sides of the work, as Mr. Edwards is on active service. Pending the return of staff now on war service, it is proposed that Mr. Scothorne's position shall remain unfilled, and that, as an interim measure, responsibility for the work of the Public Relations Office will devolve on Messrs. W. R. Robertson and W. W. Howells. The former is assuming charge of all sections of the office, apart from the Press Section, and the latter is responsible for the press work. For some years past, Messrs. Robertson and Howells have been Mr. Scothorne's principal assistants, and it seems that London Transport has taken a most desirable step, in view of the present state of the war, in leaving the Public Relations work in the hands of these capable officers, and avoiding a temporary re-organisation of the department in war conditions.

American Railways and Post-War Research

In a number of ways American railways are showing their awareness of the possibility of greatly increased civil aviation after the war. It is realised that some proportion of the passenger traffic will turn to air transport, but there are many directions in which railway travel can be made more attractive and comfortable, particularly in the design of future passenger carriages and in the use of new light-weight materials of construction. Railways are likely to maintain their traffic especially in cases where the corresponding airports are inconveniently situated for a particular route, so that the gross time required for city-to-city air traffic is disproportionately long in relation to the flying time. As to freight traffic, the need for a large-scale renewal programme for rolling stock is apparent already; existing vehicles are being worn out rapidly, due to heavy war transport services, and it is now opportune to consider what improvements can be introduced in future designs, bearing in mind the possible development of special high-speed freight services to counter road competition. Many valuable ideas on these subjects are contained in a paper presented by Mr. W. I. Cantley, to the American Society of Mechanical Engineers, which is reproduced in part on p. 514. Locomotive and tender design is considered also, and indications are given of the various constructional details towards which future research could be directed.

British Model Engineering Trade

The majority of the principal manufacturers and retailers of scale equipment for model railways, ships, and model engineering and architecture generally, have united to form the Model Engineering Trade Association. Those "boys of all ages" whose hobby is model engineering in one form or another are expected to benefit considerably from this new association when the trade gets into its stride again after the war. The chief objects of M.E.T.A. will be to improve the quality of the goods handled by its members, to produce all goods to agreed standards, and to widen the range of modelling equipment and materials available. Technical research and knowledge will be pooled, and exhibitions of the productions of members are to be held from time to time. The new association will be managed by a committee representing the principal firms in the trade. The first President is Mr. George Dow, Press Relations Officer of the L.N.E.R., Mr. R. J. Raymond is Chairman, and Mr. G. H. Lake Secretary. All are model engineers.

Richard Thomas & Co. Ltd. and Baldwins Limited

Details have been announced of a projected fusion of Richard Thomas & Co. Ltd. and Baldwins Limited, two of the largest steel sheet and tinplate manufacturers. Assets totalling some £34,000,000 are involved. Assuming the assent of the proprietors and other legal formalities, Baldwins Limited will transfer its fixed assets to Richard Thomas & Co. Ltd. as from January 1 next, in exchange for ordinary shares of the latter company. Steps are also being taken for the repayment by July next of the £2,917,182 four per cent. prior lien debenture stock, thus ending the control of Richard Thomas & Co. Ltd. headed by the Bank of England. The name of Richard Thomas & Co. Ltd. is to be changed to Richard Thomas & Baldwins Limited and that of Baldwins Limited to Baldwins (Holdings) Limited. The statement announcing the merger stated that the boards of both companies were unanimously of opinion that a fusion of the undertakings would be of benefit to both companies and would considerably facilitate the further modernisation of the tinplate and sheet industries of South Wales. After fusion both companies would work in the closest collaboration to that end in conjunction with other companies interested in those trades, and would assist such developments to the greatest possible extent financially.

More Efficient Weed Destruction

Some valuable information concerning weed destruction on railway tracks has been published recently by the Bureau of Reclamation of the United States Department of Commerce. As a result of experiments, it has been found possible both to accelerate the speed of the weed-burning trains, and to reduce the amount of fuel oil consumed, and at the same time to burn the weeds more efficiently. It is pointed out that more effective results are obtained by searing the weeds lightly than by scorching them heavily or burning them down to ballast level. Rapid and complete burning acts like a clean cut at the surface of the ground, with the result that that plant springs again to life almost immediately; but light searing kills the plant for several inches below ground level, and causes it to wilt entirely. The first burning should be given at the pre-budding stage in the spring, when the starch reserves are lowest, and the roots in the poorest condition to withstand shock. The types of weed chiefly met with in the Wyoming tests were clover, Russian knapweed, thistle, white top, and similar varieties. The testing also provided an opportunity for ascertaining the most effective speed at which to operate the six-burner plant that was in use. Sec-

tions of the track were covered at 4, 6, 8, and 10 m.p.h. respectively, and a series of colour photographs was taken on subsequent days for purposes of study. As a result of this investigation it was proved that the most lasting destruction was accomplished at a speed of 7 to 8 m.p.h.

Streamliner Passenger Records

Some of the most remarkable passenger records in American history have been made during recent years by certain of the principal streamline trains in the U.S.A. The "Hiawatha" of the Chicago, Milwaukee, St. Paul & Pacific Railroad, which began to operate on May 29, 1935, between Chicago, St. Paul, and Minneapolis—a 421-mile run—has since carried 3,275,000 paying passengers, an average of all but 500 per trip, Sundays included, for the whole of this period. From January 21, 1939, the "Morning Hiawatha" also came into service, and until May 29 last had carried 1,440,000 passengers, an average of just over 450 per trip. The competing "Twin Cities 400" of the Chicago & North Western averaged 440 passengers a trip from 1939 to 1943 inclusive. On the Southern Pacific System, the "Morning Daylight" was inaugurated on March 21, 1937, to provide a fast day service between San Francisco and Los Angeles, 470 miles, and to the end of 1943 had run 2,542,000 train-miles and carried 2,689,215 passengers, an average of 543 each way daily. As to gross revenue, the "Abraham Lincoln" streamliner of the Alton, a day train running between Chicago and St. Louis, has reached an average of $10.80 a train-mile, and the "Tennessean," of the Southern Railway, between Washington and Memphis, $9.12 a train-mile. It should be remembered that many of these streamliners still operate on mile-a-minute schedules; and some of them now load to as many as 15 to 20 coaches daily.

Individuality of the Pre-Grouping Signals

In the pre-grouping days the railway scene was made much more attractive, many think, by the variety of appearance presented by the locomotives and rolling stock of the old companies, which enabled the railway enthusiast to recognise at once to which line any engine or coach belonged. These differences were by no means the only ones which distinguished one railway from another, but were to be seen among their other possessions, particularly the signals. Simple as are the elements of a semaphore signal, they allow scope for considerable fancy in design and at one time the various engineers had their own ideas on the smallest details and put them into effect. One could tell from a glance at a signal whether one was travelling on the G.E.R., M.R., L.S.W.R., G.W.R., L.N.W.R., and so on, as the arms, spectacles, post pinnacles and balance weight fittings were absolutely distinctive. So much so that a paper illustrating the leading characteristics of the various companies' signals was presented to the Institution of Civil Engineers. Of recent years the introduction, by three of the groups, of the standard design of upper quadrant arm, for new work and renewals, has caused the gradual disappearance of the old patterns, some of which at least were more elegant. The G.W.R. alone remains faithful to the lower quadrant movement and thus to semaphores really distinctive of itself.

A Magnetic Automatic Train-Stop

The Bakerloo and District line trains run over certain of the electrified routes of the L.M.S.R., where the automatic signals are fitted with electrically-operated train-stops to conform to L.P.T.B. practice. Experience gained with these train-stops led the L.M.S. authorities to consider the possibility of designing an alternative which would dispense with any movable apparatus on the permanent way, or contact between it and the train. The satisfactory operation of the magnetic-inductive automatic train control at distant signals on the steam-worked Southend line, already described in our columns, suggested the possibility of developing a magnetic train-stop for electric trains, and on page 516 will be found a description of such apparatus, now installed experimentally on the single line between Watford and Rickmansworth. Two forms of it are available, one for use when a plain train-stop alone is required, the other, necessarily involving a greater number of parts, for installation in places where it is desired to be able to check the speed of a train between two predetermined points on the line and apply the brakes automatically should the permissible speed be exceeded. The absolute reliability of the magnetic coupling between the track apparatus and that carried on the train has been established by the performance of the older A.T.C. installation, where it has already functioned correctly many millions of times, and the remaining parts of the equipment involve only principles and details of design well proved elsewhere in railway service.

The 1914-1919 Railway Executive Committee

IN connection with our descriptive articles on the Railway Executive Committee, and having regard to the present position of military operations on the Continent, it is opportune to recall how the activities of a similar committee which functioned during the last war were affected by the cessation of hostilities. There is, of course, a vital difference between the control which is exercised by the Minister of War Transport over the railways today and that exercised between 1914-1919. In 1914 the Government took possession of the railways under the provisions of the Regulation of the Forces Act, 1871, which necessitated a warrant issued by the Secretary of State being renewed every week while the actual emergency lasted. Then, as now, the control of the railways on behalf of the Government was vested in a Railway Executive Committee composed of the General Managers of the principal main lines, but, although the official Chairman of the committee was the President of the Board of Trade, in practice he left the work of the committee in the hands of the Acting Chairman, Mr. H. A. Walker, afterwards Sir Herbert Walker, and General Manager of the Southern Railway.

Although the armistice was declared on November 11, 1918, the Railway Executive Committee continued in office until the next year. In August, 1919, an Act was passed establishing the Ministry of Transport and giving the new Minister power to retain possession and control of the railways for two years, subject to the same financial guarantees to the railways as were previously in force. The transfer of powers to the new Ministry became effective on September 23, 1919, on which day the Railway Executive Committee tendered its resignation to the Minister of Transport. In accepting this, the Minister expressed the hope that the committee would continue in existence temporarily. Three days later a national railway strike occurred and the Minister at once advised all railway companies under Government control to continue to act on the instructions of the committee.

On December 8, 1919, Sir Eric Geddes, Minister of Transport, informed the House of Commons that the Railway Executive Committee would cease to exist as from January 1, 1920, and that its place would be taken by a Railway Advisory Committee consisting of the General Managers of twelve principal railways and four representatives of the railway trade unions. It was intended that the last meeting of the committee should be held on December 30, 1919, but the final meeting was held on January 6, 1920, for the transaction of formal business.

The new Railway Advisory Committee proved to be somewhat short-lived, as it met on only two occasions during 1920. In the meantime the new Minister of Transport had appointed the Rates Advisory Committee in October, 1919, to advise him on the revision of rates, fares, and charges, and subsequently on May 11, 1921, he introduced the Railways Bill into Parliament which provided for the grouping of the railways and for the adoption of a standard revenue for each group to be secured by means of standard charges. Government Control of the railways terminated at midnight on August 15, 1921, and four days later the Railways Bill received the Royal Assent.

The Cheshire Lines Railway

THERE is only one joint line in Great Britain with separate management, and that is the undertaking owned and worked by the Cheshire Lines Committee, which (including the 14-mile Southport & Cheshire Lines Extension) comprises some 143 route miles of standard-gauge line. Before the operation of the provisions of the Railways Act of 1921, the Cheshire Lines Committee was owned in equal shares by the Great Northern, the Great Central, and the Midland Railway Companies, and each company had three directors to represent it on the Cheshire Lines board. When the G.N.R. and the G.C.R. became merged into the London & North Eastern Railway, and the Midland Railway into the London Midland & Scottish Railway, the L.N.E.R. became ⅜rd. owner of the Cheshire Lines Committee and the L.M.S.R. ⅛rd. owner; the former company has six and the latter three directors on the Cheshire Lines board. Although shorn in recent years of many of its departments by reason of the engineering, estate, solicitors, stores, and accountancy arrangements having been taken over by one or other of the parent companies, the Cheshire Lines Railway continues to remain a self-contained undertaking. An account of the way in which the Cheshire Lines Railway was evolved, and some

information on the importance of its wartime activities, formed the subject of an interesting article in the November issue of the *L.N.E.R. Magazine*, by the Secretary & Manager, Mr. Gerald Leedam, to which we are indebted for certain of the following particulars. He points out that the line is jealous of its sovereignty, and the staff of the committee proud of its heritage. He feels that in no similar undertaking in the country is there a greater evidence of *esprit de corps* among its members.

The Cheshire Lines Railway owns its own passenger rolling stock, consisting of some 268 coaching vehicles, 37 service vehicles, 4 steam railcars, 47 goods brake vans, and 30 miscellaneous vehicles. A short time before the war three new trains were built by Cravens Railway Carriage & Wagon Co. Ltd., Darnall, Sheffield, to work on the express services between Liverpool and Manchester. These have been the most popular services between the two cities for many years, but, as a result of the war, the glamour attached thereto has been dimmed, the journey now taking 53 min. instead of the 45 min. of peacetime. The Cheshire Lines Committee at the outbreak of the war became a controlled undertaking and immediately subject to the instructions of the Railway Executive Committee. In order that the management of the Cheshire Lines should be fully advised of the decisions reached by the Railway Executive Committee, arrangements were made for the L.N.E.R. to act as liaison, on behalf of the C.L.C., with the R.E.C. Daily reports are sent to the Railway Executive Committee from the C.L.C. Manager on the same lines as those forwarded by the main-line companies. The Cheshire Lines are concentrated in the important industrial area on the North-Western side of England and serve the ports of Liverpool, Birkenhead, and Manchester. They have been affected profoundly by the changed conditions brought about by the war, and the traffic density on the committee's lines, always relatively heavy in normal times, has never been exceeded. To meet the increasing strain on traffic operations due to exceptional conditions, the Ministry of War Transport sanctioned the extension of the marshalling yards in the vicinity of Liverpool; and other sidings serving the Lancashire Steel Corporation, the Manchester Ship Canal Company, and at Trafford Park, Manchester, which give exchange facilities for traffic to and from the Trafford Park Estate and the Manchester Ship Canal. The war has also brought many important factories to the area covered by the Cheshire Lines Railway.

In 1944 a new control office with the most modern equipment was installed at Liverpool Central Station, taking the place of the control which had been in existence from 1930. The Cheshire Lines have been used to a very considerable extent for the conveyance of troops to and from Liverpool and for the transport of workpeople in connection with the many works and factories connected with the railway. The Cheshire Lines were seriously affected by enemy air raids in 1940-41; scarcely any part of the line escaped. Liverpool Central Station, although showing many scars, escaped the devastation with which it was surrounded, and, except for a few days when it was compelled to close, continued its activities throughout the raids. The part played by the Cheshire Lines throughout the whole war period is one which can be viewed with pride by every member of the staff.

The Peruvian Corporation

A RECORD figure of gross receipts for the year ended June 30, 1944, enabled the Peruvian Corporation to report net receipts amounting to £313,169, against £229,458 in the previous year. The summarised results were as follow :—

	Gross receipts £	Working expenses £	Net receipts £
Central Railway of Peru	656,705	514,759	141,946
Southern Railway of Peru	481,088	337,125	143,963
Other railways	168,187	161,803	6,384
Lake steamers	59,263	38,387	20,876
Totals 1943-44	£1,365,243	£1,052,074	£313,169
,, 1942-43	£1,070,429	£840,971	£229,458

The uninterrupted expansion in revenue was due chiefly to the good demand for the four principal products of the country—cotton, sugar, copper and petroleum—and war supplies—lead, zinc, vanadium, rubber and quinine. Other contributory factors were the higher rates applicable during the year, the revival of international traffic which had been deviated through Chilean ports, due to lack of shipping at Mollendo and the heavier rainfall, which raised the level of Lake Titicaca and enabled the corporation's larger steamers to be fully loaded, with consequent benefit to receipts, gross and net. Passenger traffic continued to grow, in large measure attributable to the extremely popular self-propelled passenger units. That part of the Chimbote line owned by the Corporation, 57 kilometres in length, has been sold to the Government-sponsored Corporacion del Santa del Peru, though the terms and conditions attaching to the transaction are not disclosed. The sale will relieve the Corporation of an annual operating loss of about £5,000 and considerable outlay to rehabilitate the line. Although material aid was received from the supply authorities of the United States in maintaining the increasing traffics, many of them directly connected with the war, the undertaking was greatly handicapped by the continued inability to obtain new equipment, including railcars, while the war lasts. Wear and tear of the lines and rolling-stock are reaching a serious stage and the coming year may be a difficult one if the prevailing severe restriction of supplies is not relaxed. The balance sheet shows cash and British Government securities amounting to £878,072, which apparently strong cash position, the report states, is a reflection of the restrictions and outgoings will be heavy when materials and equipment are released. Immediate prospects appear to be favourable. No serious falling off in the business of the Corporation is expected during the current twelve months; the contract with the principal customer, the Cerro de Pasco Copper Corporation, has been renewed for a further five years on satisfactory terms and the higher rates and charges now in force have contributed appreciably towards the increased receipts recorded from July 1 to date.

Information has been received that Peru is very anxious to resume and to increase her trade relations with the United Kingdom. The Corporation participated in the formation of, and has since actively supported, the British Chamber of Commerce in Lima, which is creating an organisation to ensure that business interests desiring to develop their connections with Peru will have available a wide circle of contacts throughout the country.

Social Security on Argentine Railways

AT a time when social security legislation of far-reaching significance is impending in Great Britain, particular interest attaches to the wide range of similar benefits enjoyed by the staff of the British-owned railways in Argentina, which are described at length in a recent issue of the *Bulletin of the Pan-American Railway Congress*. It is doubtful whether railwaymen anywhere are conceded more liberal travel facilities. All grades are allowed four free vouchers a year over the lines of the company by which they are employed, for themselves, wives, members of their families up to 18 years of age, and also for unmarried daughters, father, and mother, provided that they are wholly dependent on them. If brothers or sisters, under 18 years of age, reside with the employee and are dependent on him, applications on their behalf for free travel vouchers are considered. When only night trains are available, the concession includes beds in sleeping cars. There is no limit to the number of vouchers issued to staff in receipt of more than $1,000 a month (about £63). All employees travelling free are entitled to meals in dining cars at reduced charges. Residence passes are available to all who work in the Federal Capital and live in the company's suburban zone. Annual passes, valid between all stations in the suburban zone, are issued to employees in receipt of more than $550 a month (about £35), and similar passes, valid between the suburb in which they live and Buenos Aires, are granted to wives and families. Staff in receipt of more than $700 a month (about £44), and their wives and families, are conceded annual passes valid for the whole of the suburban zone, whether they live in the district or not, and children under 16 years of age travel free to and from school. There is a reduction of 75 per cent. in the price of tickets, including seasons, purchased in addition to the free-travel vouchers.

All railwaymen and their families are entitled to one free travel voucher a year on any railway in the country; staff in receipt of more than $550 a month, but less than $1,000, and their families are conceded four such vouchers, and no limit is applicable to employees earning more than $1,000 a month. Pensioners are granted two free vouchers a year, without beds in sleeping cars, over the lines which formerly employed them, or, alternatively, 50 per cent. reduced fare orders over the systems of other companies. Widows, unmarried daughters and children receiving pensions from the Railwaymen's Fund may apply for similar privileges. Concessions in freight charges include 50 per cent. on the carriage of lambs, pigs, and dogs; poultry up to 1 cwt. a month, including crates; honey up to 66 lb. a month, including

containers; fruit up to 1 cwt. a month, including packing; firewood or charcoal up to 10 cwt. a month in winter and 6 cwt. in summer; wine, beer, and drinks up to 5 gal. a month for each person in the family over 18 years of age; and a maximum of 2 lb. of tobacco a month. There are freight-free concessions to permanent-way gangs, linesmen, and other operatives stationed at inaccessible points where there are no local shopkeepers. District engineering and operating staffs and stationmasters are supplied with fuel, water, and electricity free, and members of the staff in general are permitted to purchase firewood from the company at prices covering cost, 50 per cent. of the freight charges from point of production, and handling expenses, which, together, are appreciably lower than the retail prices in the local markets.

Free medical and dental services are provided for the staff in and near Buenos Aires, and at many centres up country. Employees who improve their education and training for better posts by courses of study through the International Correspondence Schools receive grants from the companies of 15 per cent. of the fees paid. The Buenos Ayres Great Southern and Buenos Ayres Western Railways maintain schools for dining car staffs, where instruction is provided free in the preparation of meals, the selection of wines, and deportment in dealing with the travelling public. Classes are also available for permanent-way artisans. Staff receive full pay and travelling expenses from and to their homes while engaged on such courses.

Every encouragement is given to all grades to submit suggestions for improving the railway services. The award of copper and silver medals is supplemented by money grants varying from 1½ to 6 guineas and, in exceptional cases, larger sums are awarded. Members of the staff who have occasion to conduct negotiations or claims *vis-á-vis* the National Railwaymen's Pension Fund authorities are assisted, without charge, by specialists attached to the companies' staff departments, who are versed in the intricacies of such matters and are well qualified to give valuable advice. Co-operative Societies, limited to members of the railway staffs, have been in existence for some years and continue to expand. The companies support the undertakings by conceding reduced freights, which is not the least of the reasons that enable supplies to be sold to members at prices below those ruling in the retail stores. In recent years, all the companies have extended their welfare work to include holiday centres where staff of all grades can spend their leave, accompanied by their families, at a minimum of expense, at charges which are below cost in some cases. Two major advantages, not mentioned among the foregoing, are the liberal pensions which accrue to the workers, their widows, and dependent children, described in *The Railway Gazette* of February 12, 1943, and the attractive scheme, part of the National Railwaymen's Pension Law, which enables homes to be purchased under exceptionally favourable terms, particulars of which were published in *The Railway Gazette* of April 7, 1944.

Transport and Holidays for All?

ON the assumption that the war with Germany terminates between March and May next, the problem of "Holidays for All" will become of paramount importance next spring and summer.' It is estimated by the Ministry of Labour that there are in Great Britain 33,100,000 persons between the ages of 14 and 64, of which nearly 23,000,000 (including the Armed Forces at home and abroad) are "gainfully occupied." In addition 1,000,000 men and women 65 years of age and over are in paid employment, and 1,000,000 women of all ages are rendering voluntary service. Thus, counting the men and women serving overseas, and not counting children under 14 years of age, there are 25,000,000 men and women who are looking forward to annual holidays next summer. As well as these 25,000,000 adults, there are also the children, and overseas visitors who may be in this country next year (the number of visitors from Empire and other countries in 1938 was 720,000), but these could be set against the members of H.M. Forces who will still be serving abroad. The number of holidaymakers in the first year after the war may therefore be double the pre-war number, some 25,000,000 to 26,000,000, a total which will probably rise in successive years.

Features of the problem are the possibility of demands for holidays greater than ever before, because of the need which will be felt by all for rest and recreation after five-and-a-half years of war; because millions of people have war savings and post-war credits whilst consumer goods on which they might spend will be scarce, and because the provisions of the Holidays with Pay Act, 1938, will apply for the first time. It is estimated that paid holidays now apply to at least 15,000,000 workers in Great Britain compared with 7,750,000 before the war. More than 1,000 agreements between firms and their workpeople for holidays with pay have been notified to the Ministry of Labour during the war, and in most cases these holidays vary from six to twelve days. The greatest change is among manual workers. Before the war fewer than 4,000,000 workers earning less than £250 a year had paid holidays, and now there are more than 10,000,000.

Before the war the Ministry of Labour estimated that hotel, boarding house and club services employed between 300,000 and 400,000 people, and the total number of lodging and boarding house keepers, inn keepers, hotel keepers and publicans in England and Wales in 1931 was 186,605. Pre-war, Blackpool received about 7 million visitors annually, Southend 5½ millions, Hastings 3 millions, Bournemouth and Southport each 2 millions, and Eastbourne and Weston-super-Mare each 1 million. The accommodation and the staff available for holidaymakers have undoubtedly shrunk considerably through requisitioning, bombing, billeting, and other causes since the war began, and if holidays with pay are to be enjoyed by millions of workers the holiday trades must be equipped to provide them.

Holiday camps catering for several hundreds of holidaymakers were established before the war at some 200 places. It was estimated that these camps catered in the season for 30,000 guests a week. Improved camps and holiday villages are planned, but these will take time to construct and develop. Those demanding holidays immediately after the war will not willingly wait for new camps and holiday hostels to be built. Much of the accommodation provided for Government establishments will no longer be needed for its war purposes after the war, and over half is thought to be sited in suitable places for conversion to use as holiday centres or hostels. The spreadover of holidays has been advocated, and the suggestion has met with a certain amount of response, but it is obvious that more than voluntary staggering is needed if the full demands are to be met. Will transport be available for these large numbers of holidaymakers?

Wagon Distribution in U.S.A.

THE Car Service Division of the Association of American Railroads regulates the distribution of goods wagons throughout the United States. The wagons are the property of the individual railway companies, but are pooled so that they move freely over all lines. The using railway pays a rental of a dollar a day to the owning company for the time a wagon spends on its system. The Car Service Division is busily engaged in supervising the interchange of wagons, moving empties to places where they are needed, and taking measures to ensure the prompt turn-round of rolling stock. It also deals with the question of repairs to wagons when they are off their own lines and with other matters such as the cleaning of wagons and the use of special fittings. The Car Service Division thus corresponds pretty closely to the Central Wagon Control set up by the British railways during the war and, as its work is of outstanding importance to the war effort, we have pleasure in giving a brief account of the wagon position in the States this year.

The American railways have to meet fluctuating requirements for wagons which have no parallel in this country. In summer the principal problem was to move the heaviest crop of wheat on record. Winter wheat matured early in Illinois and the region east and north of that State. The yield was 69 per cent. larger than last year's and there was an outcry for grain box wagons at the very time when these vehicles were being sent from the eastern and southern regions to the western grain loading centres. Box wagons were also required at Gulf and Atlantic ports for corn imported from the Argentine and at Pacific coast ports for cargoes of Australian wheat. Simultaneously, arrangements had to be made to handle a bumper crop of water-melons from Florida and Georgia. Then, of course, box wagons were wanted for certain classes of munitions and military stores. The distributors of box wagons can never have had a livelier time.

Gondolas, or open wagons in many cases fitted with drop ends, carry rough traffics like sand, gravel, and iron ore, but are often wanted for the movement of military impedimenta. Ore loading was 7 per cent. greater in the first half of this year than in the first six months of 1943. For the same periods coal loading increased by 8 per cent., but the loss of coal output due to shortage of wagons was exceedingly small.

The supply of plain flat wagons was tight, especially when

wagons of at least 50 feet in length were requisitioned. As with bolster wagons in this country, a continuous flow of empty flat wagons has to be maintained to the forwarding districts. Demands for special flat wagons of high capacity, say 75 tons and above, were heavy but, thanks to the control system in force, delays in loading heavy consignments were infrequent.

A prominent feature of American railway working is the movement of perishable traffic in refrigerator wagons. In the first six months of this year about 840,000 refrigerator wagons were loaded, an advance of 9 per cent. on the first half of 1943. Before the war "refrigerators" as a rule were returned empty to the loading points in the west. Now as many of these wagons as practicable are loaded with general merchandise on the homeward journey. This reduces the empty haul of refrigerators westward and saves the running from east to west of loaded box wagons, many of which would have been sent back empty. It is rather odd that the impact of a world war was needed to bring about this advantageous change in practice, but many refrigerators are privately owned and an order from the Interstate Commerce Commission was necessary to authorise the railways to act. The exigencies of wartime also led to an improvement of nearly three tons in the average refrigerator load of perishables in 1943. This gain raised the load to 22 tons and is estimated to have saved 265,000 wagons last year. Still another proof of the more effective use of refrigerators is the lengthening of the average journey: in the early months of the present year an average run of 88 miles a day was accomplished in comparison with 83 miles at the same season of 1943.

The spring of this year also saw a new record of 138 miles set up for the average daily journey of tank wagons. The current demand for tank wagons is greater now than at any time since the war started. Shipments of petroleum to the Pacific coast have been stepped up and tanks are also required for alcohol, lard, vegetable oils and other liquid commodities. A special Tank Wagon Section therefore keeps a closer check on the turn-round time of the vehicles and recently reported that, with rare exceptions, transit times were satisfactory.

The Car Service Division prevents undue detention to wagons by placing embargoes on the forwarding of traffic. In the six months ended June 30 over 600 traffic restrictions were imposed. American practice is similar to our own method of controlling the forward flow of loaded wagons save that the Car Service Division places the majority of the stops instead of leaving the railways concerned in the movement to do so. Its firm policy has eliminated heavy delays to wagons at United States ports such as occurred in the first world war. The number of wagons unloaded at the docks during May was 35 per cent. above the total for May, 1943, and was the highest on record.

The above details are culled mainly from a *News Letter* circulated in July to the employees of the Car Service Division. The *News Letter* is really a staff magazine and the bulk of its news consists of personal paragraphs written in the breezy style that Americans like, but it contains a sprinkling of pithy remarks about wagons. We read, for example, that "the average weight per car of coal dumped at Lake Erie ports during 1942 was 59·8 tons. In 1943 it was 59·9 tons. On the surface this gain might look like a mere bagatelle, but transposed into wagon economy it saved the loading of 1,317 wagons."

During this autumn pressure on rolling stock promises to be more exacting than ever, according to Colonel J. Monroe Johnson, Director of the Office of Defense Transportation. He argues that the broadening of the invasion fronts on the Continent will mean more need for haste in rushing supplies forward through Atlantic ports, while the launching of major operations against Japan at the same time involves heavy traffics to the Pacific coast, with consequent longer hauls from producing centres in the east. The Car Service Division will have a hard struggle to keep the supply of wagons fluid, but they co-operate wholeheartedly with the State Departments, the Insterstate Commerce Commission and the Shippers' Advisory Boards so that they "are at all times right down to the very grass roots of the market for transportation" and never have to deal with unforeseen factors of any importance. By means of its close contacts with the users of transport the Car Service Division has been able to distribute wagons to the best advantage and has assisted materially to improve railway service in the States during this war as compared with the performance in the previous world war when the Government operated the lines.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Railway Stock Ownership

96, McIntyre Road,
Worcester. November 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your editorial paragraph of November 10, the figures given reveal a comparatively uniform distribution of stockholdings among the different ranges of nominal amounts; but, if voting power is taken into account, a little consideration will show that control lies by an absolute majority in the hands of the £1,000-£10,000 group, and it is therefore this group which can be considered as the "railway stockholder" class.

Viewed in this light, ownership would be very much more democratic were the railways to be nationalised.

Yours truly,
J. C. BUTTON

The Most Famous Locomotive in the World

Burgess Hill, Sussex. November 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Probably most people who have heard of Stephenson's *Rocket*, consider this locomotive entitled to the above designation.

Personally, I look on the *Lord of the Isles*, the celebrated broad-gauge G.W.R. engine, as being most deserving of the title.

Your correspondent Mr. J. R. M. Thomas, in your November 3 issue, stresses the tragic fate that overtook these locomotives, after having been preserved at Swindon, the *North Star*, the first G.W.R. engine, for 35 years, and the *Lord of the Isles*, for 22 years.

I wrote in *The Railway Magazine* a strong editorial censure of the scrapping of the *North Star*, stating that the engine should have been placed in the "Lawn" at Paddington Station. ("The Lawn" was the open space between the terminal end of the platforms and the G.W.R. Hotel. It was then chiefly used as a standing ground for the railway's parcel road vehicles, and for other things unprovided for elsewhere.)

I have a personal interest in the *Lord of the Isles*. When she was cut up I wrote to Mr. C. J. Churchward, the Locomotive Superintendent, asking to be allowed to purchase one of the engine's brass name plates. He replied they had already been disposed of, and offered me one of the leather buffers, stuffed with horse hair and bound with iron rings, which I purchased. He mentioned that he could not give away the company's property.

This relic I had mounted on a circular wooden base, I still possess, and probably will do so, until it devolves upon my executors to realise it—unless I have already done so.

Yours faithfully,
G. A. SEKON

Garratt Locomotives for 3 ft. 6 in. and Metre Gauge

Pentrelew,
Escombe, Natal,
South Africa. October 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your issue for June 11, 1943, was illustrated and described a war standard 8-coupled Garratt locomotive for Crown Colony railways in Africa having a 3 ft. 6 in. gauge. I ventured to say I thought it somewhat retrograde for Crown Colony railways to be given a new class of engine having wheels of less diameter than 48 in. necessitating a short cylinder stroke, a boiler pressure of less than 200 lb. and a pony truck instead of a bogie for such sinuous railways.

The metre-gauge development of this engine illustrated and described in your issue for June 30, 1944, is the better engine, having a bogie and a heavier axle load. Just why the smaller gauge needs the heavier engine is not clear. The small driving wheels and low boiler pressure are still there.

Now, assuming two engines: (*a*) having a boiler pressure of 200 lb., 48-in. driving wheels and cylinders 17½ in. × 27 in. (which can be got with 48-in. wheels on a spiked flat bottom 60-lb. rail)

and (*b*) one having a pressure of 180 lb., 45 in. driving wheels and cylinders 19 in. × 24 in. There would be little difference in the cost of the boilers, the plates being $\frac{11}{16}$ in. and $\frac{12}{16}$ in. for the 180 and 200 lb. pressures. The following are some comparative figures (slide rule ones) :—

Item	Engine (*a*)	Engine (*b*)
Starting T.F.	31,000 lb.	31,000 lb.
R.p.m. at 20 m.p.h.	140	150
Revs. per mile	420·1	448·2
T.F. at 20 m.p.h. (Baldwin's M.E.P. chart based on revs.)	19,980 lb.	18,708 lb.
Volume of intake steam per mile at 30 per cent. cut-off (both cylinders)	1,900 cu. ft.	2,100 cu. ft.
Expansion volume per cylinder at 30 per cent. cut-off...	2·62 cu. ft.	2·75 cu. ft.
Max. cylinder h.p. at 1,000 ft. per min. piston speed (Cole's formula)	1,102	1,170
Piston speed at 20 m.p.h.	630·1 ft. per min.	597·6 ft. per min.

It will be seen that at an average speed of 20 m.p.h. (usual on Crown Colony railways) engine (*a*) would make 28,100 less revolutions per 1,000 miles than engine (*b*) ; she would also use 200,000 cu. ft. less intake steam at 30 per cent. cut-off.

It may be said that it would be a little difficult to choose between the two engines. I, personally, would prefer engine (*a*) as promising less wear and tear on the motion and using a little less steam rather more effectively ; also somewhat less coal.

I have always been an advocate of long stroke cylinders. I am aware that Mr. Bulleid has reverted to 24 in. on his " Merchant Navy " class Pacifics. He may have had the problem of dynamic augment in mind. In any case a high speed express engine and one for heavy drags on Crown Colony railways are two different things. I also remember that the express engines with a 30-in. stroke designed by my chief of early days, Mr. G. J. Churchward, still skim the rails on the G.W.R.

It is very encouraging to note that 13½ tons per axle have been allowed for these engines running on a 60-lb. rail ; that is, 494½ lb. per 1-lb. weight of rail per yard. My personal recommendation has been the figure of 500 lb.—practically the same thing—but, in the past, I found chief civil engineers somewhat difficult in this most important matter which has a direct and lasting effect upon the carrying capacity of a railway per train mile.

Yours faithfully,

G. V. O. BULKELEY,
Formerly General Manager, Nigerian Railway

[In a footnote to a previous letter from Mr. Bulkeley on the same subject published in our November 26, 1943, issue the position as to the design of these war Garratts was given as far as we could at the time. We can now add a little further information. In the first place, an existing design as a basis, reducing designing work to a minimum, was insisted on, and as at the time of ordering the engines were required to haul the maximum load on 1 in 30 uncompensated grade, a 3-ft. 9½-in. wheel was selected. It is appreciated that larger wheels are required for certain Colonial railways and a 4-ft. 3-in. or 4-ft. 6-in. dia. would be considered even more suitable than 4 ft.—the latest K.U.R. Garratts have 4-ft. 6-in. wheels. We are officially informed that, nevertheless, the locomotives concerned are doing excellent work on various railways and handling very heavy loads, which was the main object in ordering these powerful engines. As to the wheel arrangement, hundreds of Garratts and thousands of straight-type engines, for example, the Mikado type, have only a leading truck and the majority of Garratts have similar wheel arrangements at the inside end of the units. All are used on the sharpest curvature; for example, the latest Far Eastern Garratts for 17° curves are 2-8-2 + 2-8-2, as are also the American war Mikados built for the same purpose. Such an arrangement is entirely satisfactory, although the advantages of a leading four-wheel bogie and, indeed, a trailing four-wheel bogie in the case of the Garratt, are fully recognised and utilised when necessary. The 4-8-2 + 2-8-4 type built for the metre gauge was so designed to give extra water and fuel supplies for certain special conditions.—ED. *R.G.*]

Passenger Accommodation on Trains

Great Western Railway, Paddington Station,
London, W.2. November 20

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Referring to the questions put to Mr. Noel-Baker by Sir Ian Fraser and Mr. Ellis Smith on the subject of passenger accommodation in trains, I should like to take this opportunity of drawing attention to what has been, and is being, done at Paddington to assist invalids and injured service men and women in whose welfare the honourable members were particularly interested.

Since the outbreak of war a First Aid Post, fully equipped and continuously manned, has been maintained at Paddington Station and by arrangement with the R.T.O., the A.R.P. section of my office, which is responsible for the post, is kept advised of the movement of all cases which need special assistance in entraining or detraining, and the necessary steps are then taken.

Throughout the war every assistance has also been given to civilian invalids, aged and infirm persons, women and young children, and, apart from cases which are brought to our notice through the British Red Cross Society, the St. John Ambulance Association, the W.V.S., the C.D. Group Headquarters, the Almoners' Association and other organisations, the station staff is always on the watch for travellers who appear to need care and attention, and is regularly directing, or if need be taking, people to the First Aid Post, which has become the centre of a welfare service greatly appreciated by the staff and members of the public.

The Divisional Traffic Superintendent has co-operated wholeheartedly in the scheme and a limited number of seats for the exclusive use of invalids is reserved on every main-line train leaving the station.

Since January this year 16,135 civilian invalids have been accommodated on trains in this manner, including 1,398 who had to be assisted to their train in a wheeled chair kept available for the purpose, and 651 who had to be carried to the train and conveyed to their destination in a stretcher specially designed for adaptation to the ordinary railway compartment. The figures for military cases cannot be given, of course, but the civilian figures, I feel sure, will indicate that at Paddington, to quote Mr. Noel-Baker's words, " the railway staff already does whatever it can to help those passengers who appear to need help most." If Mr. Ellis Smith cares to visit Paddington he will find ample evidence of the care that is taken to ensure that such passengers are made as comfortable as possible.

Numerous letters of thanks have been received from grateful passengers and the officials of the organisations mentioned above have frequently expressed their appreciation.

Yours faithfully,

GEO. STEPHENS,
Chief of Police

"A Protest at Railway Propaganda"

16, Suffolk Road, North Harrow,
Middlesex. November 20

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read the correspondence which you have published concerning this subject, but I cannot add " with deep interest." Surely your correspondents are not of the opinion the matter is one likely to cause a national crisis. I entirely agree with your observations following Mr. Nock's letter of November 6.

In these days, when we are all, or most of us, deeply concerned with the major problem of winning a war, it affords a little relaxation if we can discover some humour, even if it is only in " black and white." It was very properly intended that a coloured poster should be drawn which would catch the eye of the travelling public and act either as a warning not to travel by rail or an inducement to stay at home. Can it be seriously suggested for one moment " the man in the street " has been affronted because of one or two small technical details being incorrect. What does he care if the signal spectacle should be " blue "? The authorities hope he will see the " red " light.

The type of signal displayed is one we have known and been accustomed to since we were children and I think even the dear old lady who travels once a year would have little difficulty in realising the picture portrayed " A signal at danger " or in other words " I must not go."

Yours faithfully,

W. E. WALLIS

Post-War Railway Passenger Travel

5, Rathen Road, Withington,
Manchester 20. November 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—With reference to Mr. Macinnes' letter published in your November 17 issue, might I add to his third requirement that new branches should be constructed to link up existing line—in particular from Broom Junction to Worcester and also from New Radnor to the L.M.S.R. Central Wales route. This would result in a through trunk (and strategic) route from Harwich and East Anglia *via* Cambridge, Bedford, Olney, Towcester, and Worcester to South and West Wales, and would be particularly useful when the single-line sections, for example, Ledbury Tunnel, were doubled.

Yours faithfully,

EDMUND ROBINSON

The Scrap Heap

"No countenance so completely gives away its owner's inner mood as Mr. Churchill's. During these four years it has been, for the House of Commons, an unerring barometer of our fortunes."—*From the "Manchester Guardian"*

* * * *

HEAVY TAXATION

At present all income over £20,000 is taxed at 19s. 6d. and lesser incomes are heavily mulcted. If anyone wants £5,000 a year for himself, he must earn £60,000 a year.—*From "Times Trade & Engineering."*

* * *

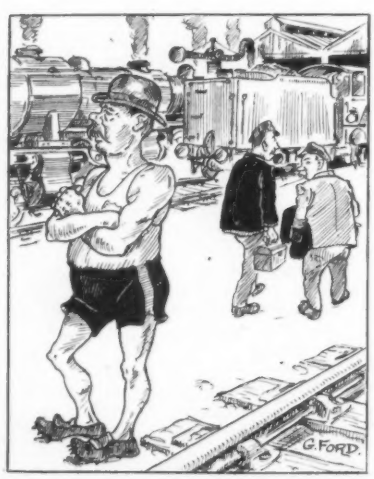
No fewer than 5,630 umbrellas, left behind by travellers, were collected by the L.M.S.R. last year. Travellers on the L.M.S.R. forgot other things, too, such as a glass eye, a barrel organ, a case of butterflies, a case containing a calf with two heads, a three-legged cock, artificial teeth, and artificial limbs. In 1943, no less than 86,540 articles were dealt with in the L.M.S.R. Lost Property Depot.

* * *

MULTITUDE OF CONTROLS

As with many other industries, there is a Government department which professes to control us. I would point out that the co-ordination of all controls is carried out by companies like your own. The bureaucrats have not yet found it possible to control industry through one channel. Factories are the perquisite of the Ministry of Works and the Board of Trade. Labour is the responsibility of the Ministry of Labour. Machine tools are governed by the machine tool department, responsible partly to the Ministry of Supply and partly to the Ministry of Production. Provision of our raw material is mostly the function of the Iron & Steel Control.

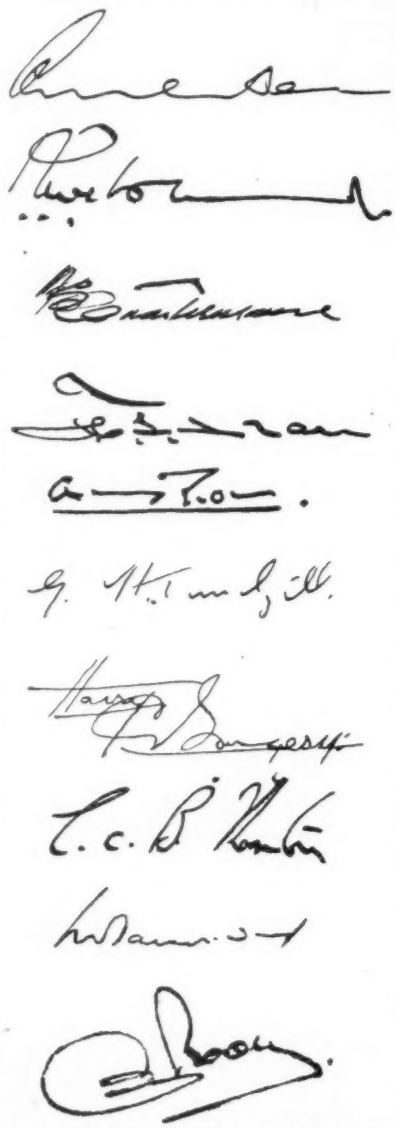
A member of Parliament remarked recently that in supply circles not only does the right hand not know what the left hand doeth, but even the fingers of the same hand have no knowledge of what the next-door neighbour is doing. In addition to these London departments, we must not forget the Regional Controllers for the Admiralty, the Ministries of Production, Aircraft Production, Supply, Works, and, I dare say, some others as well!—*From Mr. Michael Dewar's address to the shareholders at the general meeting of British Timken Limited.*



Running Foreman

CRYPTOGRAMS IN CORRESPONDENCE

Existing signatures of famous men of the past show that they often exercised considerable latitude in the way they spelt their names. Shakespeare himself is known to have used several varieties of spelling, but apparently did not consider it necessary to help his readers by printing his name in block capitals under his signature. Now that custom forbids such variations, some letter writers exercise their ingenuity by evolving a form of signature which bears only a passing and superficial resemblance to a combination of letters of our alphabet. A serrated



horizontal line, with perhaps the suggestion of a few dots and cross-strokes, appears cryptically beneath the writer's declaration that he is faithfully or truly ours. Underneath, the writer's name is typewritten, for the benefit of persons unfamiliar with his mark. We are reminded of the rather laboured puns which used to appear in children's comic papers, with the explanation in brackets afterwards. If we had understood the pun, we were annoyed at having the explanation given to us; and if we had not, we thought no better of the author even when he had explained it. We are inclined to feel the same emotions today when we receive a letter with the writer's name typed out under the signature. The habit seems on the way to acceptance as one of the conventions of business correspondence. It brings the danger that even the legible writer may be tempted to develop a scribble, when he sees how odd his letters look with his name twice at the bottom.

* * *

RAILWAY TRAVEL IN RUSSIA

I have just spent a few days in the capital of the Ukraine, Kiev, which was liberated exactly a year ago, and I was interested to see how the city had changed since then, and how the process of reconstruction was going on in the Ukraine. For a change, I decided to go to Kiev by train. In November 'plane flights are very uncertain. You think you are saving time, but more often than not you arrive at some unholy hour at an airfield, only to find there is no flying weather; and the same thing may happen the next day and the day after. Not that you get anywhere quickly in Russia today by travelling by train. There are a number of extra-rapid services, for example the Trans-Siberian Express or the Red-Arrow Express going from Moscow to Leningrad, but even that takes about seventeen hours instead of ten for its four hundred miles. The train for Kiev is distinctly more leisurely, and it took nearly thirty-six hours to cover a distance of some fifty-five miles—two nights and one day. But how can one complain?

During that whole day, as far as I remember, I did not see a single railway station building, except a small temporary barracks. All had been burned down or blown up. Of many towns nothing was left but a few chimney stacks, with the house itself burned down. Here and there new wooden houses were being built, but sometimes the train would stop at some station without any visible signs of human habitation around.

Railway travel in Russia is, of course, strictly regulated. It isn't yourself but the authorities who decide whether your journey is really necessary. The only trains to which this rule does not apply are the suburban trains. So to get on to a long-distance train in Russia is not easy. But at least once you are inside it you are fairly comfortable, and there is never any overcrowding. On the way to Kiev I shared a four-bunk compartment with three other people. We pooled our food and talked and played dominoes, the usual railway-train pastime in Russia.—*Alexander Werth in "The Listener."*

* * *

The average daily issue of *Hansard* was 5,450 copies for October, 1943, and 8,300 copies for October, 1944. The present maximum daily output is 10,000 copies.

* * *

TAILPIECE

(The Flying Scotsman and Cornish Riviera Limited are the only names of trains to survive in timetables)

The Flying Scotsman still survives
Although the world war rages.
Its headboards bear unchanged a name
Shown too in Bradshaw's pages.

Cornish Riviera fares as well.
Its title is not banished
From tables and from service sheets,
Though Limited has vanished.

What's in a name, one well might ask,
To earn such long survival?
The answer is a simple one—
'Tis service beats your rival!

W. N.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

South African Airways

The Minister of Transport announced recently in Durban that the civilian airline services between Durban and other Union cities, which were suspended on the outbreak of war when the South African Airways fleet was handed over to the Defence Department, are to be resumed in a few weeks. The new interim services will be operated by a fleet of ten Lockheed Lodestars, which will be expanded when more, and probably larger, aeroplanes are available.

The first services probably will connect Cape Town, Johannesburg, and Durban; but other routes are likely to be covered when more aircraft are released.

Ultimately, Mr. Sturrock said, South African Airways will operate the latest type of modern aircraft which will become available in the post-war period. (South African Airways are operated by the Railways & Harbours Administration).

INDIA

Railways and the Public

Recently press correspondents made a three-weeks tour, the first of its kind ever organised by the Railway Board, which included Lahore, Madras, Bombay, Calcutta, and rail centres in Assam. The object was to inform the public of some of the "behind-the-scenes" activities of the railways in connection with munitions production.

In a talk to the correspondents before the commencement of the tour, Sir Arthur Griffin, Chief Commissioner of Railways, commented on the work of the Indian railways in the face of wartime difficulties. He said that before the war military goods traffic had amounted to half-a-million tons a year, whereas in 1943-44 it had risen to 16,000,000 tons. To conserve coal, reduce wear and tear, and make way for increased military traffic, passenger train mileage had been reduced by 37 per cent., in spite of which fact the number of passengers carried had risen steadily, and was now 25 per cent. higher than in 1938-39. The railways' wartime job was "no mean effort."

G.I.P.R. and Post-War Passenger Services

The Great Indian Peninsula Railway, in expectation of a higher standard of living in India after the war, is preparing new and comfortable coaches for third class passengers. A demonstration of its passenger-service plans is expected to be given shortly on the Bombay-Poona section.

Locomotive Building

Dr. H. J. Nichols, General Manager of the Bombay, Baroda & Central India Railway, recently told press representatives that the railway authorities intended to convert several workshops in India to meet her locomotive needs. He said that it might be possible for India to build locomotives for the Near East and the Far East At present, 22 metre-gauge locomotives were being built every year.

The B.B.C.I.R. Position

Dr. Nichols said that his railway had lent 140 locomotives, 305 passenger coaches and 10,000 goods wagons to other railways, and for military purposes, since the beginning of the war. He intimated that it was intended to restore the pre-war services by the end of the year, and added that the Railway Board was considering the extension of the electric suburban service which at present reached Bihar.

Comparing present-day with pre-war working, Dr. Nichols said that passengers and trains were three times as many, and that goods wagons were running twice as far daily, performing 141 per cent. as much work. In connection with safety measures on trains, he stated that consideration was being given to the building of carriages with floor-levels the same as platform-levels and with doors to open inwards (the B.B.C.I.R. is the only broad-gauge railway in India the carriage doors of which open in the outwards direction).

CANADA

Proposed Montreal Underground

The Montreal Tramways Company, with the assistance of De Leuw, Cather & Company of Chicago, for the past year has been investigating the prospects and cost of constructing an underground system for the city. A project has now been prepared embodying a north-south line, 5½ miles long, and an east-west line, 2¼ miles in length, the aggregate cost of which, it is estimated, would be about $60,800,000. The construction and equipment of the two lines, it is thought, would take four years. They would represent pioneer routes of a more ambitious network of tubes.

UNITED STATES

Pennsylvania 4-4-6-4 Locomotives

The Pennsylvania Railroad, which has introduced experimental 6-4-4-6 and 4-4-4-4 passenger locomotives, has now produced the first of its new 4-4-6-4 type for fast and heavy freight service, of which 26 in all are to be built. The new Class "Q2" engine is not articulated, but has two independent groups of coupled wheels, each with its own cylinders and motion, giving the power and adhesion of ten-coupled wheels together with the speed capacity of a six-coupled locomotive. Driving wheels are 5 ft. 9 in. diameter, working pressure is 300 lb. per sq. in., and tractive effort is 114,860 lb., The engine in working order weighs 267 tons, and the tender which accommodates 40 tons of coal and 19,000 gal. of water, 192 tons, making a total of 459 tons (of 2,240 lb.) for engine and tender. As with the largest Pennsylvania classes, the tender is carried on 16 wheels, grouped in two 8-wheel bogies. The overall length of engine and tender is 124 ft. 7 in. The new locomotive is designed to haul 125 bogie wagons at an average speed of 50 m.p.h.

A 3½-mile Concrete Viaduct in Louisiana

In July last the Missouri Pacific Railroad brought into use a remarkable engineering work, which had been under construction for three years, on its main line from New Orleans to Houston. This is a diversion on to a concrete trestle-viaduct of a continuous length of 3½ miles, built at the expense of the Federal Government to raise the railway above a stretch of country which may be flooded deliberately as a part of the Government's general flood-prevention scheme.

The maximum height of the new viaduct is 20 ft. and its construction has called for 50,400 cu. yd. of concrete, 5,125 tons of reinforcing steel, and 736,000 lin. ft. of foundation piling; approach embankments have required 1,000,000 cu. yd. of filling. The total cost of the diversion has been $2,500,000. This is now the longest continuous viaduct on the Missouri Pacific; at one time there was a 7-mile timber trestle-bridge near Yancopin, Arkansas, which since has been replaced by an embankment.

SWITZERLAND

Stansstad-Engelberg Railway

As has been indicated already in *The Railway Gazette*, a scheme has been evolved for the modernisation of the metre-gauge Stansstad-Engelberg Railway, and for its linking up with the general railway network, from which it has always been isolated.

The two halves of Canton Unterwalden have had different fortunes in respect of rail facilities. Obwalden is traversed by the metre-gauge Brünig line (Lucerne-Interlaken) of the Federal Railways, recently electrified and improved. Passengers require only to change platforms at Lucerne or Interlaken; and standard-gauge goods wagons are conveyed on special trucks as far as Meiringen and Giswil, respectively, where the rack sections commence. Nidwalden is served almost exclusively by a few cable lines and the privately-owned electrically-operated Stansstad-Engelberg Railway, on which financial considerations have made it impossible to effect more than minor improvements since its opening in 1898. The last-named line starts from the steamer landing-stage at Stansstad, on the lake of Lucerne; and this involves for passengers from other parts of Switzerland a lake trip of 50 min. from Lucerne; goods have twice to be transhipped. The lake services have been reduced during the war on account of fuel shortage. Stans, the capital of the half canton, is reached in 7 min. (4 km.), and the important mountain resort of Engelberg (altitude 1,002 m.) in 69 min. (22·5 km.).

Projected Improvements

The capacity of the route is limited by the 1·5 km. Abt rack section, with a maximum gradient of 25 per cent. It is worked by five small 4-wheel locomotives, stationed at the foot of the incline, which push the motor coaches up and retain them when descending; only one car, of comparatively recent construction, has rack equipment of its own. On the adhesion sections of the line, the motor coaches originally had a speed of 20 km.p.h., later increased to 25 km.p.h., and more recently to 40 km.p.h. The projected improvements consist chiefly of (*a*) elimination of the present rack section by a deviation using adhesion only or the rack system with a gradient of 11 per cent.; (*b*) construction of a 2·5-km. connecting line from Stansstad, across the Lake of Lucerne by a bridge 14 metres above water level near the road swing-bridge and along the Lopper ridge, with two tunnels 66 and 543 metres in length, respectively, to Hergiswil Station on the Brünig line; (*c*) conversion from three-phase 850-volt, 32 cycles, to the standard single-phase current at 15 kV, as on the Brünig line; (*d*) improvements to track to permit higher speeds; and (*e*) provision of new rolling stock, and modernisation of some older units. On completion of this programme, Engelberg passenger trains would start from Lucerne Station and use Brünig metals as far as Hergiswil (8·6 km.), reaching Stans in 25 min. and Engelberg in 75 min. Goods transport also would benefit.

The whole project has been worked out in co-operation with the Federal Traffic Department, and as soon as conditions permit it is likely to be put into execution as a relief measure.

XUM

Post-War Research Possibilities in Railway Equipment*

A review of the scope for possible future improvements in locomotives and rolling stock

THE criticisms directed for many years toward the railway industry concerning their alleged lack of research and initiative suggest that people refuse to understand that the railways have only one commodity to sell—transport. It has been customary to purchase in the open market the many thousands of items necessary for the railway systems; reliance is placed on the ingenuity of competitive business, guided by the demands of the individual needs of the railways, to keep abreast of developments in materials and equipment. The railways have not done badly, in spite of the handicaps inherent in an industry of such great size, and in which the first consideration is the safety of the passengers and goods carried. This factor of safety always has been, and will be, a brake on any efforts to bring about quick, radical, or spectacular changes in railway equipment, no matter how great may be the popular appeal of such changes.

The Association of American Railroads is essentially a clearing house of railway problems, and as such it is often called on to undertake a research that may last for years, for example, the passenger carriage axle investigation, now in its sixth year. As an incidental result of that research, an entirely new type of hollow axle has been evolved and adopted as an alternate standard. When, however, the results of the Association's efforts are distributed to member railways and interested organisations, the function of the Association ends, except for equipment subject to interchange rules. The final authority as to the type of equipment that shall be run on their own lines lies with the individual railways.

This seemingly limited scope for research actually covers a tremendous field. So many pieces of equipment are involved in the operation of a railway that there is an endless chain of problems arising, improvements to be made, and changes in basic design, and new equipment and designs to be considered and tested.

Locomotives

Much can be done to reduce locomotive dead weight, where a weight-limit basis of operation exists, by using alloy steel in the boiler, rods, and so on, as well as by using a better grade of steel in the construction of the frames, with cylinders cast integrally. With present-day equipment, weight must be retained where possible so as to achieve the necessary factor of adhesion. It is expected that the use of light-weight rolling stock will increase after the war; the power to haul this should be fast, powerful, and flexible, but may be lighter in weight than engines for hauling heavier equipment. The use of lighter, stronger metals, fusion welding instead of riveting in the boiler, and other refinements will permit stepped-up power to handle such traffic at any speed.

There is room for improvement in the method of steam distribution. Much has been done, notably the experiments with poppet valves, but the most promising development in this field is known as the steam distributor. One type is now undergoing service tests and shows promise of considerable economy of power; another promising type is in process of development.

Fuel economy should be considered also, and an intensive study made with the aim of improving the draught arrangements of locomotives.

An inherent difficulty in the steam locomotive is the dynamic augment which involves the track as well as the engine itself. An investigation carried out by the combined Engineering and Mechanical Research Offices of the Association of American Railroads has not been completed, but it is hoped to publish a formula for cross-balancing the various types of locomotives, so as to increase their critical operating speeds considerably.

The weight of tenders could be reduced by improved materials in the construction of bogies, frames, and bolsters, together with the use of hollow axles. The tender main frames, now of cast steel, could be lightened by using better grade steel, or by welded construction, and the tank proper could be all-welded instead of riveted. It is doubtful whether any reduction in thickness of the tank plates could be made, as the present $\frac{1}{4}$ in.—sometimes only $\frac{3}{16}$ in.—is as thin as any material should be to withstand the impact of surging water or fuel.

Many have thought that a turbine-engine would form the ultimate prime-mover for the railways, and experiments in this direction have continued over the years. They have developed generally along the lines of turbo-electric engines; such a locomotive was built a few years ago. Evidently there are still some difficulties to be overcome, as the experiment did not turn out satisfactorily.

A comprehensive study of the potentialities of the gas-turbine locomotive is under way; although it is too early to make any positive predictions, this type of power would seem to offer great possibilities for an economical, simple, and effective prime-mover.

Goods Wagons

Plans for post-war railway rehabilitation should be made now. Wagon loadings reflect the volume of traffic handled, but in achieving these figures the railways are wearing out available equipment quickly. The number of wagons in the U.S.A. now available is 1,710,000, a decrease of 567,500 on the 1929 figure. A large number, estimated at a million, should be retired in the next ten years, which is comparable to the 789,600 wagons retired during the period 1932 to 1940 inclusive.

The suggested light-weight goods rolling stock, as a post-war development, confronts the designer with the problem of controlling the train at high speeds. In 1940 the average goods train weighed 849 tons, and consisted of 49·7 cars. The design of the light-weight wagons introduces a difficulty into the braking arrangements, in view of the difference between empty and loaded weight. Considerable research will be needed before an ideal light-weight wagon, capable of meeting all the requirements of high-speed operation, is placed in service. Light-weight wagons might be classified into two groups:—

(1) For moderate speeds, to increase the ton-mile revenue, designed to carry bulk commodities.
(2) For high speeds, for use in long trains to carry express goods traffic.

The first group could take advantage of new types of material and methods of construction; the nominal load limit should not exceed three times the unladen weight unless some special braking arrangement is developed. The second group, to meet the high-speed service forced on the railways by competition, should be capable of being controlled in long trains with the same dispatch as are passenger trains. The ratio between the unladen weight and load limit of these wagons must be reduced substantially, to obtain sufficient braking power and truck spring deflection for high-speed operation. Railways will have to resort to freight classification such as "Express Goods," carried at a higher rate, to justify the development of the special equipment. Light-weight wagons for high-speed service should have (*a*) bogies with longer wheelbase; (*b*) better spring suspension; (*c*) suitable brakes; and (*d*) effective and permanent longitudinal cushion devices.

The longer wheelbase bogie is advocated to reduce the frequencies of nosing and vertical displacements. Vertical oscillations induced at the rail joints can be minimised if rail joints are eliminated by welding; however, it will be years before all-welded rails can be expected, and, moreover, vertical oscillations will not be totally eliminated as long as vertically acting springs are used. The difficulties in providing bogie springs which will cushion the body effectively under every type of load are well known. The difference between empty and loaded wagon weights complicates the problem as much as the limited travel allowed for the bogie springs, which in turn is governed by the permissible drawgear height between light and loaded weight.

A long-range building programme of goods equipment calling for the construction of 125,000 new wagons and the retirement of a similar number of old wagons yearly for eight years, should be contemplated. The designs should incorporate welded construction (and where economical) suitable high-strength corrosion-resisting steel. The use of light-weight materials (plywood, aluminium, and so on) should be encouraged, where suitable. Sections of folded thin materials have not yet been introduced into wagons where strength is required.

The new designs should be modified if necessary in the light of subsequent experience; wagons must prove durable, low in maintenance costs, and be capable of withstanding shocks encountered in higher shunting speeds without damage to wagon bodies and contents; furthermore, a durable cushioning device of constant capacity is needed.

Passenger Coaches

The American public is becoming air-minded; air liners are expected to carry up to 70 per cent. of the pre-war railway transcontinental passengers. However, air travel as an everyday time-saving way of travelling must be considered in the light of the ratio of time of flight to time required between business centres and the airports. The total cost of travel against the comforts enjoyed will, to many travellers, become the influencing factors when choosing between air and rail trans-

* Paper by Mr. William I. Cantley, Association of American Railroads, Chicago, contributed by the Railroad Division of the American Society of Mechanical Engineers, for presentation at the annual meeting, New York, November 29 to December 3, 1943. Abridged

portation. The success of each mode of travel will depend upon the schedules and comfort offered. The comforts which rail passengers may enjoy are closely related to carriage design; and the post-war passenger carriage will have to embody all elements of comfort consistent with operational requirements; so the carriages, of whatever design, must meet present requirements for strength, to provide safety for the occupants, and must be economical to operate.

The use of light-weight equipment, at present only partly developed, can be increased. The weight of the standard carriage has been reduced already from 172,000 lb. to 107,500 lb., but safety requirements imposed subsequently have raised the weight to 110,000 lb. Analysis of the weights of the component parts of a light-weight carriage, each expressed as a percentage of the total weight, shows that only few reductions in the weight of components can be made. Further reductions in the weight of specialities and finish are possible through research into the use of new light-weight materials. The use of welded assemblies in lieu of castings offers a weight-reducing possibility, namely, air-conditioning equipment and generators may be made lighter, and new insulation may be developed to provide further reduction in weight.

For easy riding, ample but controlled lateral motion should be provided in the bogies. Some device should be developed which will resist accelerations of the body, either vertically or laterally, in proportion to the forces exerted. Devices intended to damp acceleration function in proportion to the displacement and not the acceleration. A sudden stop of a lateral displacement at the end of the permissible travel of the carriage body is very unpleasant for the passengers.

There would seem to be a great future in store for a central research laboratory owned, operated, and controlled by the railways. Up to the present, all investigations have taken place in the laboratories of railways, universities, or private industry, with complete co-operation and satisfactory results. In association with private research laboratories the companies involved have been always completely above reproach in their relationship, enabling integrity, so necessary in any unbiased investigation, to be maintained. However, there are those who will harbour always some suspicion that influence might have been exerted. For this reason, if for no other, a railway-owned testing plant would have a beneficial effect on all associated industries. Furthermore, it would tend to avoid duplication of effort where several organisations may be working on the same problem, each without knowledge of the other's activity.

Such a laboratory should include a locomotive-testing plant and experimental track, together with facilities for the testing of axles, draw-gear, journal bearings, brakes, and all the other apparatus now scattered over the country. Because of the close co-operation between the research offices of the Electrical and Mechanical Divisions of the Association of American Railroads, such a laboratory would house the staffs and equipment of both offices, thus bringing even closer the idea of inter-related research between track and equipment, which are dependent on each other.

A New Design of Pullman Dining Car

Diagonal arrangement of tables to expedite service

PLANS for a post-war railway dining car embodying diagonal seating and possessing the "atmosphere and appointments of a fashionable club" have been prepared by the Pullman-Standard Car Manufacturing Company, U.S.A. The outstanding feature of the car is its floor plan, which is arranged to accelerate service, to eliminate interruptions caused by arrivals and departures at the tables, and to enable waiters to step to the side when serving, so that aisles are free at all times.

Other innovations which have been introduced include vibrationless tables, spot-ray illumination, linen storage at each table and intercar telephone communication.

Tables, which have a total seating capacity for 42 persons, are placed diagonally and seats are set at a 45 deg. angle to the side of the car instead of at right angles to it as in ordinary diners.

Both two- and four-capacity tables are included, the former to provide privacy for a party of two and remove the self-consciousness of being seated with strangers at a table of four. Tables for four persons are square but have the same area as rectangular tables in other diners. Two-place tables are triangular. For safety, all corners and edges are rounded.

One of the benefits accruing to the traveller from the angular seating arrangement will be unobstructed movement. Each person will slip into his seat or leave

Triangular table for meals for two persons

the table without disturbing his neighbour. Everyone will have a side of the table to himself and enjoy a normal conversational position. At the same time, each one will view the passing scene without even turning his head. The diagonal arrangement will permit waiters to step between the tables when serving, and they will serve from the side instead of reaching over the person occupying the aisle seat.

One of the reasons service will be expedited in its new diners is that changes of linen are to be stored in compartments at each table. They will be reached without disturbing passengers at the tables. An improved table setting will result from keeping water bottles, sugar containers, and menus on triangular shelves along the wall at the juncture of the diagonal seats. The waiter will supply these utensils when serving each table and immediately return them to the shelf. This will leave a maximum table space for the diners and make for quick changes of linen.

For the foregoing details and illustrations we are indebted to our American contemporary, the *Railway Age*.

Inductive Train-Stop and Speed Control on the L.M.S.R.

The L.M.S.R. has developed a magnetically-operated train-stop for electric trains, with speed control if required, following experience with automatic train control on the Southend line

ABOUT 12 years ago the L.M.S.R., wishing to make the observation of the signals easier to its drivers, especially in bad weather, decided to undertake experiments with automatic train control and selected the Hudd inductive apparatus, with which the Southern Railway had made trials on its western main line at Byfleet, for this purpose. After effecting a certain number of alterations in the details, as a result of investigations conducted at Bow Works and tests on the line, a satisfactory design of engine and track equipment was arrived at and applied to 111 distant signal locations on the Southend line, over the 37 route miles between Campbell Road Junction and Shoeburyness. A full description of it appeared in *The Railway Gazette* for August 12, 1938, and in our issue for September 8, 1939, reference was made to the application of the same apparatus to the Edinburgh-Glasgow line of the L.N.E.R.

The equipment was arranged to give an audible horn cab signal and vacuum brake application at the approach to a distant signal at caution; the driver was able to cancel this action by depressing a push-button. Actually, the warning action is set in operation, from a permanent magnet in the centre of the track, irrespective of the indication being given by the signal, but should it be "off" an electro-magnet, placed about 30 ft. beyond the permanent magnet and energised under these conditions, restores the apparatus to normal almost immediately. The braking action then has no time to take effect and the horn signal is reduced to a short blast, indicating that a signal location at clear is being approached. The equipment has given very satisfactory service. The development now described is at present on trial between the junction near Watford High Street and Rickmansworth. The reliability of the magnetic coupling between track and train has been proved on the Southend line where it has now functioned correctly over 12½ million times.

Application of the System to Train-Stops

Although the application of A.T.C. apparatus to ordinary 2-aspect distant signals, whether semaphores or colour-lights, is what is most generally required, there remains the question of adapting anything of the kind to other types of signalling. On the section of the London electrified lines of the L.M.S.R. over which the L.P.T.B. Bakerloo and District line trains run the colour-light signals are fitted with electrically-operated train-stops, in accordance with the principles of working generally used throughout the Underground system. On the L.P.T.B.'s own lines an approach indication to a stop signal is only provided where local conditions render it essential, fog repeaters being used to cover conditions of bad visibility, and a full brake application is brought about by a train-stop if a red signal aspect is overrun. The train-stop consists of a trip arm on the track, worked electro-pneumatically or electrically in conjunction with the signal controls, set to engage in the stop position with a trigger valve-arm on the front of the train. When the latter arm is moved aside the brake train-pipe is opened and the brakes applied; the drop in air pressure also causes the traction circuits on the train to be opened.

Train-stops of this class, although simple in principle, involve apparatus which is comparatively expensive to instal and maintain, especially in the case of electric-motor mechanisms, needing careful adjustment and maintenance. It has been found necessary to add proving contacts to the train-stop heads, to ensure that they are intact, and to fit treadle devices at selected stations, actuated by the trigger arms of arriving trains, to prove the arms in their operative condition. The breaking and making up of trains, so frequently resorted to with the multiple-unit system in normal times, involves the setting in and out of action of the trigger arms concerned, and special controls are required to enable trains to back past stop signals, which is sometimes necessary in regular running. Wrong line working, too, when trains have to pass a succession of train stops in the operative position which do not apply to them, presents appreciable complications.

These considerations led the L.M.S.R. to investigate the possibility of adapting the proved principles of its inductive A.T.C. to the construction of a train-stop for electric trains. It had already, as referred to in an editorial note in our issue for December 31, 1943, applied the track inductor to the automatic change-over switch gear on its electric trains when passing from earth to insulated return at Birkenhead Park Station, where the Mersey and Wirral lines connect. To extend the principle to give a train-stop effect was therefore a natural development.

Action of the Inductive Train-Stop

The working of the inductive train-stop is shown in Fig. 1. The train carries a receiver, similar to that used on the locomotives on the Southend line, except that its armature operates a contact and there is no direct connection between the receiver and the brake piping. In the normal running condition current flows, as shown by the arrows, from a source on the train through the driver's resetting push, fixed on the side of the driving compartment remote from the controller, and the contact in the receiver to an electro-pneumatic brake valve, which is thus held open to pressure. In this condition it maintains equal pressure above and below the piston of the emergency application valve and the latter is kept closed by a spring. At the signal there is a permanent-magnet inductor, with its south pole towards approaching trains, and fitted with a deflecting coil, which is not energised if the signal is "on," as it is in the figure. If the train now overruns the signal the armature of the receiver is reversed, opening the circuit to the e.p. brake valve and de-energising it. This in turn opens the upper side of the piston of the emergency application valve to atmosphere, allowing the piston to rise, venting the brake pipe and applying the brakes. The apparatus is restored to normal by the driver pressing the re-setting push and sending current through the winding on the receiver. This creates a field which throws the armature back to its original position, closing its normal contact and re-energising the e.p. brake valve. The emergency valve is then in turn restored to normal again. If, on the other hand, the signal is at clear, the deflecting winding at the inductor is energised and no

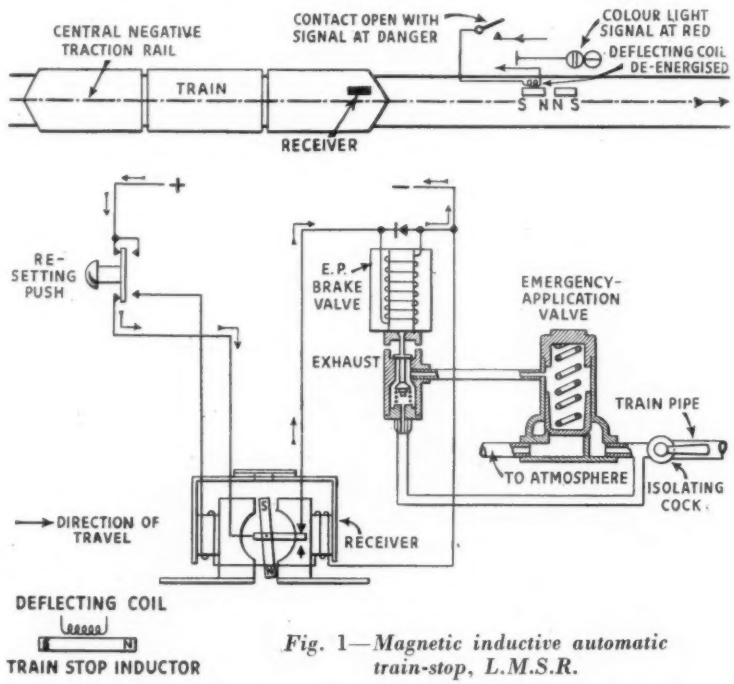


Fig. 1—Magnetic inductive automatic train-stop, L.M.S.R.

effect is transmitted to the receiver as the train passes the location.

It is to be noted that the receiver is so arranged as to respond only to a magnetic flux in a horizontal plane in a direction parallel to the direction of traffic; it is quite unresponsive to fields set up by current in the traction rails. The armature is held by magnetic bias in either position. The electro-pneumatic valves are of standard construction, already used with the Westinghouse brake.

Combined Train-Stop and Speed Control Mechanism

It has been found useful at some places on lines carrying a traffic like the Underground to be able to control the speed of a train between two specified points and apply the brakes if that speed should be exceeded. This is to be found on the Northern line between Highgate and Archway stations, where train-stops operate in conjunction with a timing mechanism to control the clearing of signals as drivers approach them. The inductive train-stop has been arranged to give a speed control feature in the manner illustrated in Fig. 2.

The armature of the receiver has both front and back contacts. There is an additional e.p. valve known as the control valve, a timing cylinder with contact maker, a timing reservoir and 2 relays. (One of these, the re-setting relay, could be dispensed with by providing an additional contact on the cancelling push.) Two permanent magnet inductors are used at each location. They are spaced close together, the first having a deflecting winding, when acting as a train-stop, and spaced apart, at a distance to suit the speed limit called for, when acting as a speed control. The brake actuating gear is the same as already described. In the normal condition current is flowing as shown by the arrows and both e.p. valves are energised; air pressure is equal on each side of the pistons of the timing cylinder and the emergency application valve. If the train now overruns the signal the armature of the receiver is thrown over by the first inductor, de-energising the control valve but closing the circuit to the brake valve through its back contact, so that the latter valve is held energised. (The rectifier across its winding prevents it from opening during the movement of the receiver armature). The opening of the control valve breaks the circuit to its own winding as well as the normal circuit to the brake valve and vents the timing cylinder to exhaust. After a certain interval determined by the timing reservoir and the restriction in the exhaust pipe, the timing piston rises and closes the circuit to the timing relay, the contacts of which bridge the "stick" contact on the control valve.

The train, however, also now has passed the second inductor, placed immediately ahead of the first one, and the armature of the receiver has been restored to normal. The circuit from the back contact of the receiver armature to the brake valve is now again open and as the timing cylinder has not had sufficient time to complete the operations just described the control valve is still de-energised and current in consequence cut off from the brake valve, which opens and applies the brakes. The train-stop effect is thus produced if the receiver armature is thrown over and thrown back again quickly, that is to say before the timing cylinder has been able to act. If the signal is in the clear position the deflecting winding of the first inductor will be energised and no effect whatever on the receiver armature will be produced.

When passing between two speed control inductors the action is as follows. On passing the first inductor the receiver armature is reversed, as above described, and the timing cylinder action is initiated. If the driver observes the speed limit prescribed the timing cylinder and timing relay will have operated and re-energised the control valve before the second inductor is reached and the receiver armature restored to normal; the brake valve will in that case be held energised and the brakes remain off. If, however, the speed is above the limit the second inductor will restore the receiver armature before the timing action has been completed; the control valve will not be picked up and the brakes will be applied exactly as described in connection with the train-stop action. Whether the brakes are or are not applied therefore depends on whether the receiver armature is or is not restored to normal before the contact on the timing cylinder is closed. (The timing cylinder action could be replaced if preferred by any recognised arrangement—thermal, electric, etc.—able to give the same effect).

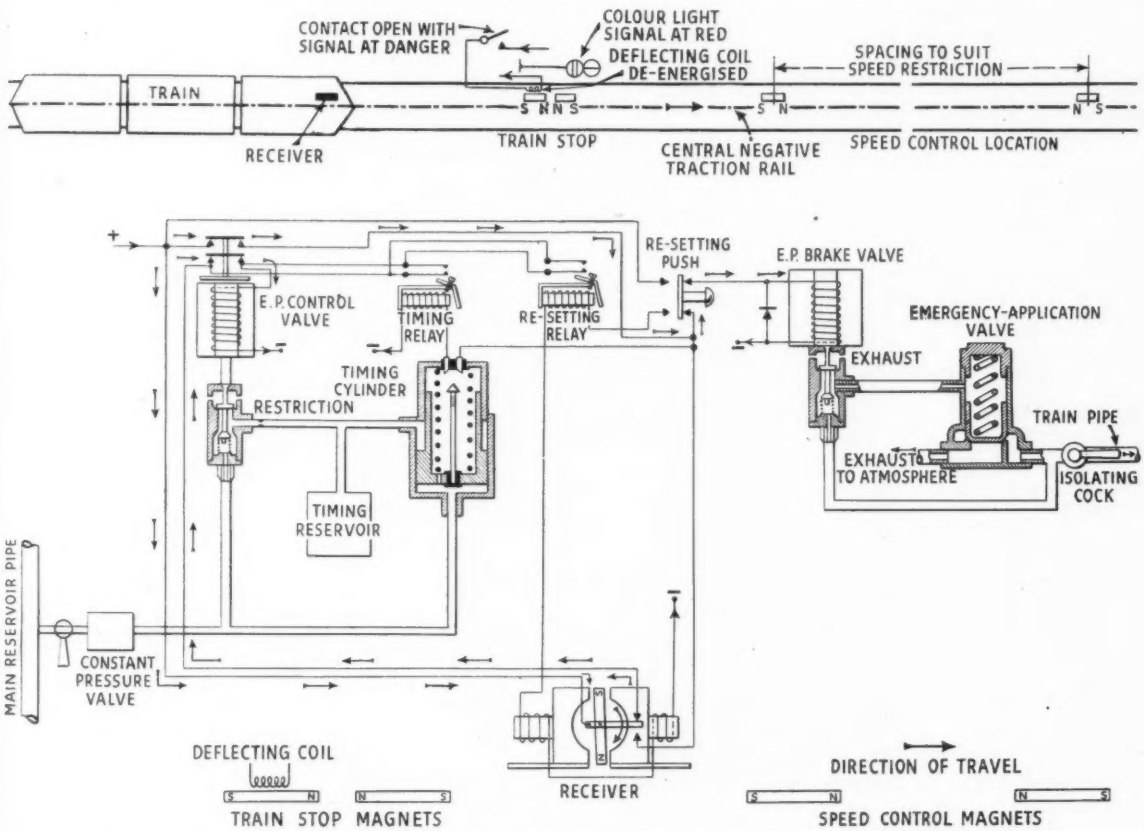


Fig. 2—Magnetic inductive automatic train-stop, combined with speed control action, L.M.S.R.

The driver's re-setting push acts in the same manner as described for the plain train-stop, but there is a re-setting relay in series with the restoring winding on the receiver, the contacts on which are in parallel with those on the timing relay and bridge the "stick" contacts on the control valve. This enables this valve to be re-energised in those cases where the receiver armature has not been operated but the valve has been opened by current having been switched off.

For speed control the two inductors are ordinarily both permanent magnets without deflecting winding; but if it were desired to have the speed control operative only under certain conditions the first inductor could be fitted with such a winding, suitably controlled. Except in those conditions this would be energised and no action on the train would be produced.

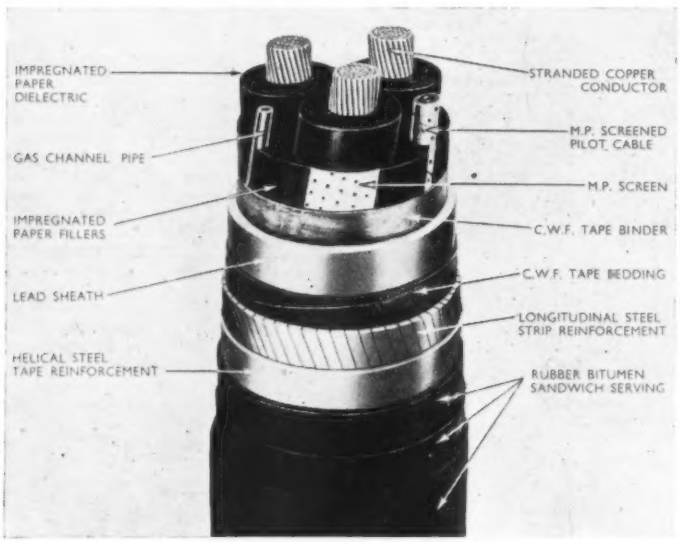
It will be seen from this description that the arrangement shown in Fig. 1 is sufficient should a plain train-stop only be required. If, however, the speed control action is wanted, if only at a single location, then the equipment illustrated in Fig. 2 is necessary and the ordinary train stop locations must each have the two inductors placed close together.

Advantages Claimed

With this type of apparatus there are no movable parts exposed to the weather, either on the track or the trains, and no mechanical contact is involved. There are no trigger arms and cocks to be put in and out of use, or to create difficulties when trains have to be made up or broken. The control over the receiver circuits is easily effected, in conjunction with the multiple-unit equipment, so that only the receiver situated where the driver is stationed need be in operation. Although for clearness a contact is shown in the diagrams to control the deflecting windings of the inductors this is not essential and it is possible to arrange the circuits so that the signal lights and the inductors prove each other mutually, without any contacts being required, positive correspondence between the two being ensured at all times. This greatly simplifies the wiring required in automatic-signal installations, as train-stop proving is unnecessary.

Callender's Three-Core 132-kV. Cable for Underground Electrical Transmission

The use of nitrogen under pressure in a fully impregnated paper cable improves dielectric performance



WHEN the 132-kV overhead grid lines were erected in this country, the possibility of transmitting at this voltage by underground cable was discussed, as no cable of proved reliability for 132,000 volts working was available. Callender's Cable & Construction Co. Ltd. claims to have laid in Holland the first gas-pressure cable to satisfy the 264-kV stability tests, applied between conductors and earth.

By applying pressure to fully-impregnated paper cable, the performance of the dielectric can be greatly improved. In the normal solid-type cable, because of the thermal expansion of the compound, the service heat cycles necessarily cause void spaces to appear in the dielectric. These spaces form a source of dielectric weakness, but, if the interior of the cable is raised to a pressure of 200 lb. per sq. in. by nitrogen gas the dielectric strength of the void spaces is raised to that of the impregnated paper dielectric. The gas is introduced at one end of the cable from high pressure gas cylinders. A special advantage of the three-core cable is that in its construction is embodied not only the gas channel pipe but also a small two-core screened pilot cable which, in each joint box, is coupled to a special resistor switch. In the event of the internal pressure in any of the joints falling, the low-pressure indicating switch places a resistance across the two-core pilot cable and an automatic Wheatstone bridge at the end of the feeder is brought into action, measuring the resistance of the pilot cable and thereby locating the actual joint in which the drop in pressure has occurred.

The limiting performance of ordinary solid type dielectric is in the region of 50-kV/cm. of wall thickness, but when pressure is applied to the cable dielectric, it is possible to utilise a maximum stress of 100-kV/cm. for design purposes. The size of conductor is 0·45 sq. in.; the overall diameter is 4·8 in.; the approximate cross-sectional area is 20 sq. in.

The joints of the three-core cable are built up with paper tape and preformed paper, enclosed (without compound filling) in a lead sleeve, which in turn is enclosed within a copper reinforcing sleeve to withstand the gas pressure, and the whole is surrounded by a standard outer pitch-filled concrete box. An earth screen is placed immediately over the applied dielectric. The space between the dielectric and the joint sleeve is nitrogen filled and provides the gas path between the adjacent lengths of cable. Every three-core joint is equipped with a low-pressure indicating switch.

When sealing, the 132-kV three-core cable is terminated in a horizontal dividing-out box with single-conductor cables leading to the sealing ends, which are insulated from their supporting structure, and earthed at the horizontal dividing box position to prevent the introduction of circulating currents in the sheathing and reinforcement of the cable.

The illustration shows a three-core 0·40 sq. in. 132-kV impregnated gas pressure and combined pilot cable.

CONSTRUCCIONES DEVIS S.A. VALENCIA.—This Spanish undertaking, which builds steam and electric locomotives, and rolling stock, paid a dividend of 5 per cent. for 1943. The share capital is to be increased by 5 million pesetas to cover substantial orders which necessitate an extension to the works. An electric steel furnace is being installed. Work is stated to be proceeding satisfactorily despite shortage of materials, and repairs to rolling stock are increasing. A number of electric locomotives is to be built, the mechanical parts for which will be supplied by Schweiz. Locomotiv-Maschinenfabrik Winterthur, and the electrical equipment by Ateliers de Sécheron S.A., Geneva.

CHICAGO'S 19 CANAL BRIDGES MADE TO OPEN.—To enable war vessels to be built on the Great Lakes and floated down the Mississippi River to the Gulf of Mexico, 19 bridges over the Chicago Sanitary & Ship Canal have had to be converted from fixed to movable structures, or, if not previously equipped though designed for opening, have had to be equipped completely for that purpose. The largest of these bridges was that carrying South Western Avenue over the canal. It previously had a clear headway of 21 ft. above water level, but its central 109-ft. lifting section can now be raised a further 28 ft. vertically, to provide a 49-ft. headway. This central section as a fixed span was carried on two cantilever girders each of 31 ft. 6 in., and these girders also now carry the lifting towers and gear. A feature of this bridge is its great width, namely 145 ft., which enables provision to be made for ten lanes of traffic which occupy 123 ft. of the width of the bridge and two footways.

THE RAILWAY EXECUTIVE COMMITTEE—II

Establishment of "executive" R.E.C.—Occupation of emergency headquarters—The R.E.C. committees—The headquarters work of the R.E.C.

THE political events of March, 1939, caused the Government emergency plans to be crystallised, and in April confidential instructions were issued by the Ministry of Transport to the General Managers of the railways in Great Britain as to the proposed control of the railways, and the working of essential traffic thereon, during a major emergency. It was explained that in such an event the Minister of Transport would be responsible for the provision, allotment, and co-ordination of internal transport services, and the railways would be brought under the Minister's control. A responsible officer at the Ministry of Transport, known as the Railway Control Officer, would be assisted by a Railway Communications Committee of representatives of other Government Departments concerned with traffic by railway.

The Railway Executive Committee would be responsible, under the direction of the Minister, for the operation of the railways, and the Railway Control Officer would keep the committee advised from time to time as to the general requirements of Naval, Military, and Air Force traffic, and of other traffic declared by the Government as essential, and the priority to be accorded to the various classes of such traffics. The General Managers of the controlled railways would be required to carry out the instructions of the Railway Executive Committee.

As ordinary management of the railway undertakings was to remain, even in war, in the hands of the existing railway staffs, the functions of the R.E.C. were to ensure that the railways were operated in accordance with the policy of the Minister, and to apply its knowledge of the actual and potential capacity of the railways so as to ensure that they made the greatest contribution to furthering the war effort. To this end the Committee provided an unified and co-ordinated direction.

Staff was then selected, and equipment arranged, on the basis of minimum essential requirements for maximum expected service. As space is severely restricted in the R.E.C. emergency headquarters, and many of the rooms have one curved wall (representing a portion of a tube), much of the equipment had to be built specially. On July 3, 1939, the L.M.S.R. Carriage & Wagon Works were supplied with detail drawings for the special furniture, etc., and on July 26, a schedule was prepared of such fittings at Fielden House as were suitable for the emergency headquarters, and these articles were marked up for despatch at short notice. The L.N.E.R. undertook the provision of stores, and a list was agreed on August 15 of supplies to be earmarked for immediate despatch.

By the end of August, 1939, the structural work was only about 60 per cent. complete, the ventilation was scarcely begun, and the lighting and sewage arrangements were unfinished. Nevertheless, on September 1, the R.E.C. gave instructions for the premises to be prepared for immediate occupation in view of the serious international situation. The telephone switchboard was already working and the furniture was immediately installed. Temporary lighting facilities were provided, and chemical closets introduced. The premises were fully occupied on September 3—the day that war was declared on Germany—and some of the senior officers of the R.E.C. were actually making their way to the headquarters when the air raid warning was sounded over London a few minutes after Mr. Chamberlain had finished his historic radio speech.

The hurried occupation of the premises greatly retarded progress with the organisation of amenities and the completion of protective works. Operations thereafter had to be planned on short hour schedules and carried out without interference to the duties of the R.E.C. staff, in the face of a 24-hour sleeping and working occupation. As much work as possible was effected between 11 p.m. and 8 a.m. away from the dormitories.

As is well known, the Minister of Transport issued on September 1 the Railway Control Order, 1939, and from the date the R.E.C. assumed its executive functions. The full text of the Order is as follows:—

STATUTORY RULES AND ORDERS
1939 No. 1197
EMERGENCY POWERS (DEFENCE)
Railways

THE RAILWAY CONTROL ORDER, 1939, DATED SEPTEMBER 1, 1939, MADE BY THE MINISTER OF TRANSPORT UNDER REGULATION 69 OF THE DEFENCE REGULATIONS, 1939 (S.R. & O. 1939, No. 927).

The Minister of Transport in pursuance of his powers in that behalf makes the following Order:—

1. The Minister hereby takes control of the undertakings or portions of undertakings in Great Britain wholly owned by, leased to or operated by any one or more of the following undertakers:—

1. the Southern Railway Company,
2. the Great Western Railway Company,
3. the London Midland and Scottish Railway Company,
4. the London and North Eastern Railway Company,
5. the London Passenger Transport Board,
6. any Joint Committee of any two or more of the above,
7. the East Kent Light Railway Company,
8. the Kent and East Sussex Light Railway Company,
9. the King's Lynn Docks and Railway Company,
10. the Mersey Railway Company,
11. the Shropshire and Montgomeryshire Light Railway Company.

2. The Minister hereby appoints the Railway Executive Committee, consisting of:—

Sir Ralph Lewis Wedgwood, C.B., C.M.G., Chairman,
Sir James Milne, K.C.V.O., C.S.I.,
Mr. C. H. Newton,
Mr. Frank Pick,
Mr. Gilbert Savil Szlumper, C.B.E.,
Sir William Valentine Wood,
with Mr. G. Cole Deacon as Secretary,

to be his agents for the purpose of giving directions under this Order and any direction in writing signed by any two members of the Railway Executive Committee or by any member and the Secretary of the Committee shall be a valid exercise of the authority hereby given to the Committee.

3. This Order shall continue in force until revoked or amended by writing under the hand of the Minister or of the Secretary or Deputy Secretary or any Assistant Secretary of the Ministry of Transport.

R. H. Hill.
1st September, 1939. Authorised by the Minister

On September 25, 1939, Mr. Szlumper (who had been appointed Director-General of Transportation & Movements at the War Office) was replaced on the Railway Executive Committee by Mr. (now Sir) Eustace James Missenden, O.B.E. On the retirement of Mr. Frank Pick from the London Transport Board in May, 1940, Lord Ashfield succeeded him as a Member of the Railway Executive Committee. Sir Ralph Wedgwood resigned the chairmanship of the R.E.C. in August, 1941, and was succeeded by Sir Alan Garrett Anderson, who also became Controller of Railways under the Ministry of War Transport. At the

same time, Sir James Milne was appointed Deputy-Chairman of the R.E.C.

For some considerable time after the beginning of the war, the R.E.C. held daily meetings (including Sundays), but, as plans for the movement of wartime traffics advanced, and the many additional works and other improvements recommended by the Committee were brought into operation, it was possible progressively to reduce the number of meetings, and at present the Committee holds one regular meeting weekly and arranges such additional ones as are necessary.

The offices of the Committee are open continuously throughout the 24 hours, and catering arrangements, which are under the supervision of the Charing Cross Hotel, provide meals for each shift. Most of the staff has been loaned by the Railway Companies' Association, the main-line companies and the Railway Clearing House.

In September, 1939, the various consultative committees that had been appointed earlier by the R.E.C. dropped the word "consultative" from their titles, as they became committees of an executive body. In addition, a Road Transport Committee was set up in September, 1939, and, from the beginning of January, 1940, the Railway Clearing House Advertising & Public Relations Committee was re-constituted as the Publicity Committee for purposes in which it functions on behalf of the R.E.C. From January, 1940, also, the Sabotage Committee was renamed the Police Committee. The Catering Committee was begun in February, 1941; the A.R.P. Committee (originally an inter-railway committee set up in June, 1939) was re-formed in March, 1941, as the A.R.P. Committee of the R.E.C.; the Coal Committee was established in May, 1942; and the Home Guard Committee (begun as an *ad hoc* committee in July, 1940) was reconstituted in December, 1942, as the Home Guard Committee of the R.E.C. The full list of committees and their personnel at the present time is as follows:—

Solicitors
I. Buchanan Pritchard (Chairman), Miles Beevor, A. Eddy, P. W. Pine, H. L. Smedley, C. G. Page

Goods Managers
G. Marshall (Chairman), F. W. Lampitt, C. N. Mansfield, B. H. Harbour, A. E. Hammett

Passenger Superintendents (Coaching)
A. E. Hammett (Chairman), G. E. Orton, C. G. G. Dandridge, B. H. Harbour, C. Johnson

Mineral Managers
C. N. Mansfield (Chairman), A. E. Hammett, B. H. Harbour, C. Furber, J. E. Kitching

Operating
V. M. Barrington-Ward (Chairman), G. Matthews, S. H. Fisher, W. J. England, Evan Evans

Civil Engineers
W. K. Wallace (Chairman), A. S. Quartermaine, J. C. L. Train, V. A. M. Robertson, P. Croom-Johnson

Mechanical & Electrical Engineers
Sir William Stanier (Chairman), F. W. Hawksworth, J. H. Parker, H. W. H. Richards, E. Thompson, C. E. Fairburn, O. Bulleid, A. Raworth, W. S. Graff-Baker

Signal & Telegraph Engineers
Lt.-Colonel G. L. Hall (Chairman), F. H. D. Page, A. E. Tattersall, A. F. Bound, R. Dell

Accountants
C. R. Dashwood (Chairman), L. C. Glenister, G. Morton, A. E. Moore, L. C. Hawkins, R. G. Davidson

Surveyors
A. Endicott (Chairman), C. B. Tidmarsh, F. C. Hockridge, W. H. Roberts, T. C. West

Coal
F. W. Hawksworth (Chairman), A. P. Ross, L. P. Parker, R. A. Riddles, H. Rudyard, Col. C. J. Francis, A. Cobb, A. B. B. Valentine

Staff
O. Cromwell (Chairman), H. Adams-Clarke, Kenelm Kerr, G. H. Brooks, H. J. Comber

Stores
A. P. Ross (Chairman), G. F. Boxall, R. A. Riddles, Colonel C. Francis, A. B. B. Valentine

Statistical
G. Morton (Chairman), H. E. Hedges, L. C. Glenister, W. J. Sawkins, H. N. Trye, F. A. Menzler

Docks
H. A. Short (Chairman), L. E. Ford, P. Gibb, G. E. Staves

Police
A. J. White (Chairman), W. B. Richards, H. S. Cole, G. Stephens, Colonel H. C. Prescott, P. L. Smith

Road Transport
J. Shearman (Chairman), Guy Jones, A. R. Wilson, F. T. Gray, V. C. Wormald, A. B. Potter, E. M. Jackson, A. E. C. Dent, W. H. E. Humphrey

Publicity
G. H. Loftus Allen (Chairman), Major J. M. Dewar, C. G. G. Dandridge, C. Grasemann, George Dow, F. Scothorne, H. T. Carr, H. F. Locke

Catering
A. E. Towle (Chairman), J. E. Ryan, J. L. Rendall, R. A. P. Setterfield

A.R.P.
G. S. Hussey (Chairman), W. J. Nigh, J. L. Webster, C. R. Wade, E. T. Brook

Home Guard
Ashton Davies (Chairman), K. W. C. Grand, G. S. Hussey, E. T. Brook, S. H. Isaac, G. Marshall

These committees deal with all matters referred to them by the Railway Executive Committee, as well as questions of general interest raised by individual members, which it is felt should be handled on uniform lines. They are empowered to reach provisional decisions, except in matters involving policy or matters referred to them by the R.E.C. for recommendation or advice. Their provisional decisions are, of course, subject to confirmation by the R.E.C. Orders given by the latter are carried out by the respective General Managers who retain the managerial operation of the railways in accordance with the instruction of the Minister given at the outbreak of war that they should carry on as usual "subject to the directions of the Executive Committee."

The Operating Staff

With one exception, these committees are concerned with advisory, co-ordination, and unification work, and require no separate staffs, but, in connection with the detail work of the Railway Executive Committee, an operating staff has been provided by the four main-line railway companies and is accommodated at the R.E.C. headquarters. The operating organisation is under the control of Mr. V. M. Barrington-Ward, as Chairman of the Operating Committee, and in this respect he functions as a part-time officer of the R.E.C., in addition to his

Sir Ralph Wedgwood, the first Chairman of the Railway Executive Committee, in his office at the R.E.C. headquarters

Mr. G. Cole Deacon, Secretary of the Railway Executive Committee, in his office at the R.E.C. headquarters. The offices of both the Chairman and the Secretary have direct access to the committee room, in addition to doors leading into the main corridor

THE FULL RAILWAY EXECUTIVE COMMITTEE IN SESSION IN 1940

This view, taken in the Committee Room at the R.E.C. headquarters on April 26, 1940, shows (left to right) Sir Eustace J. Missenden, S.R. (Member); Sir James Milne, G.W.R. (Member); Sir William Wood, L.M.S.R. (Member); Mr. W. H. Mills, R.E.C. (Minute Clerk); Mr. E. G. Marsden, R.E.C. (Assistant to Secretary); Sir Charles H. Newton, L.N.E.R. (Member); the late Mr. Frank Pick, L.P.T.B. (Member); Sir Ralph Wedgwood (first Chairman); Mr. G. Cole Deacon, R.E.C. (Secretary); and Mr. V. M. Barrington Ward (Chairman of the Operating Committee)

R.E.C. (Assistant to Secretary); Sir Charles H. Newton, L.N.E.R. (Member); the late Mr. Frank Pick, L.P.T.B. (Member); Sir Ralph Wedgwood (first Chairman); Mr. G. Cole Deacon, R.E.C. (Secretary); and Mr. V. M. Barrington Ward (Chairman of the Operating Committee)

Two officers of the Railway Executive Committee in their office at the R.E.C. headquarters in London

Telephone exchange (at platform level) with view beyond of a corridor arranged in a former tube passenger foot tunnel

Duplicating room (at platform level) in the headquarters of the Railway Executive Committee

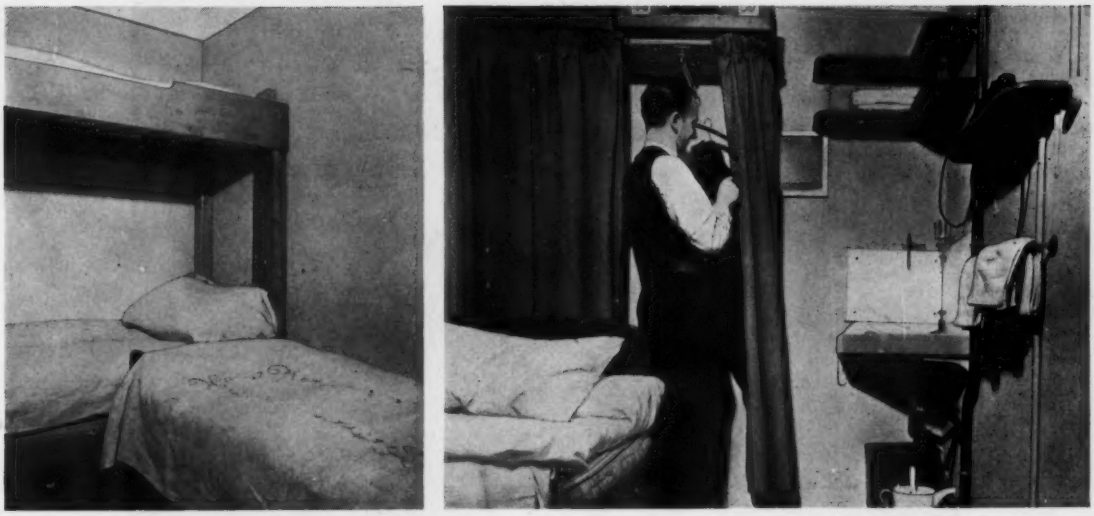
View in general typists' room, in low-level subway, clearly showing economical use of space in portion of former passenger foot tube tunnel

Executive Committee mess room laid for lunch

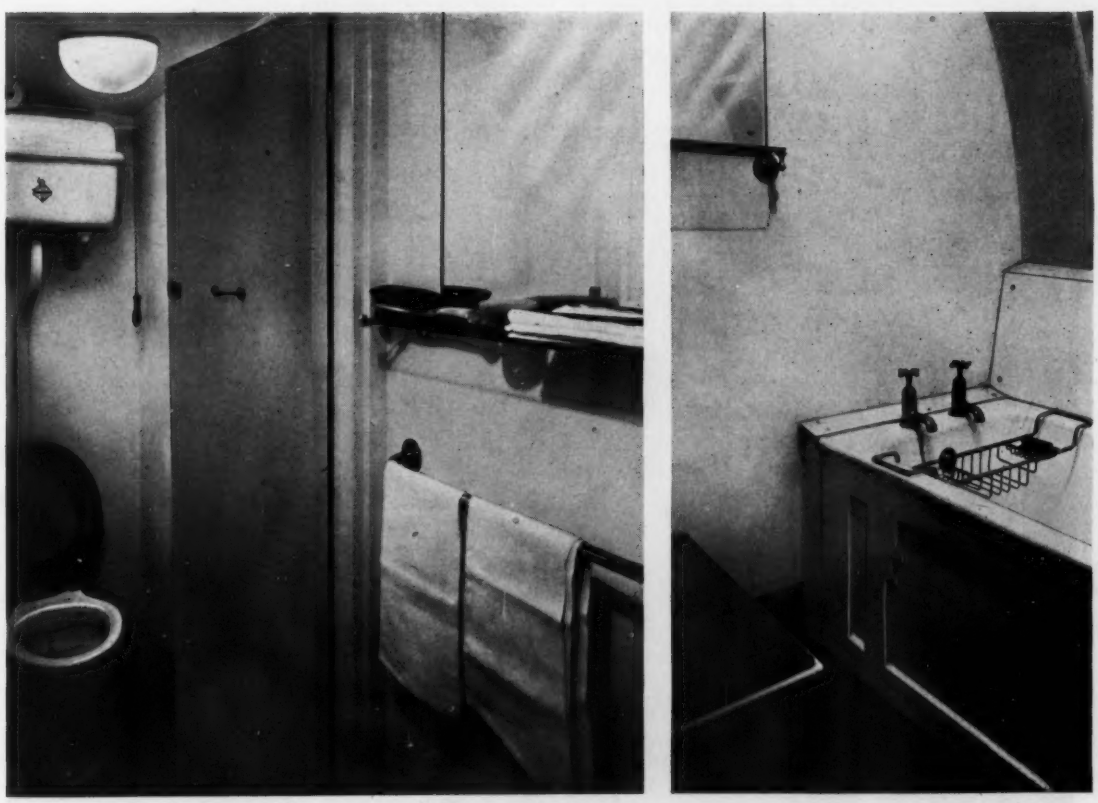
Neatly-planned pantry arranged in the confined space available

General view in the kitchen, which has been arranged with the utmost economy of space and is strongly reminiscent of the kitchen car in a main-line train

CATERING FACILITIES, AT PLATFORM LEVEL, IN THE R.E.C. HEADQUARTERS



Left: Corner in three-berth staff bedroom. Right: Another view in staff bedroom showing neatly-planned amenities. Every bedroom has a telephone extension to enable the occupants to be summoned instantly day or night. The dormitories are all on the platform level



Two views of the toilet facilities in the bathrooms and lavatories, arranged in the high-level subway, for the use of members of the Railway Executive Committee

SLEEPING AND TOILET FACILITIES IN THE R.E.C. HEADQUARTERS

A view in the Operating Office, on the platform level, showing maps and rolling-stock disposition charts

Another view in the Operating Office. The charts bearing small flags immediately beneath the clock indicate the composition and location of every military ambulance train and casualty evacuation train in Great Britain

Mr. V. M. Barrington-Ward, Chairman of the Operating Committee, at his desk in the R.E.C. headquarters

ordinary railway duties, with the assistance of Mr. L. P. Ball, Assistant Divisional Superintendent, L.M.S.R., Crewe, who is engaged in a whole-time capacity. This arrangement permits of close contact being maintained with the Ministry of Transport and other Government Departments and the railway companies, and acts as liaison between the Government Departments on the one side and the railway companies on the other.

It is the invariable practice to leave all executive matters to the railway companies concerned, but if two or more companies are involved in any important move or requirement, the Operating Office, which is manned continuously, keeps close watch on the movement, so that the Railway Executive Committee can be assured that satisfactory arrangements are made and that the work required is promptly carried out.

No. 214

RAILWAY EXECUTIVE COMMITTEE

IDENTIFICATION CARD

.....**is authorised to enter the Offices or other premises of the Railway Executive Committee in the execution of his or her duty.**

This Identification Card is valid until cancelled or withdrawn. It must be signed in ink by the holder, and be carried for presentation on demand when entering or leaving the Offices or other premises of the Committee. The holder may be called upon to sign his or her name as a proof of identity.

G. Cole Deacon

.....

Secretary.

Signature of Holder.....

Full-size reproduction of special coloured identification card issued to members of the R.E.C. staff; it is used as a pass to obtain entrance to the headquarters

R.E.C. Despatch Rider Service

To facilitate the interchange of correspondence, the London Passenger Transport Board has arranged for a seven-day-a-week service to be provided by a motor cycle despatch rider between the following points: Waterloo station, Kings Cross Station, Euston Station, Paddington Station, 55, Broadway, the R.E.C. Staff Council at Fielden House, the Ministry of Transport, and the Railway Executive Committee headquarters. The despatch rider, who comes from the Camberwell Divisional Office of London Transport, makes the journey four times in a day, taking about two hours to complete the circuit. This service came into operation within the first few weeks of the war, and is still maintained.

The R.E.C. motor cycle despatch rider on his daily circuit during the severe weather in the early part of 1940. *The service is arranged by London Transport*

(*Concluded*)

The "Cornish Riviera Limited" Express, Great Western Railway

The train is seen on the down journey, passing Dawlish Warren, South Devon, on the final stage of the 225½-mile non-stop peacetime summer schedule from Paddington to Plymouth. The illustration is reproduced from "British Railways in Peace and War," issued on behalf of the four main-line companies and the L.P.T.B.

RAILWAY NEWS SECTION

PERSONAL

Sir Ronald Matthews, Chairman of the London & North Eastern Railway Company, has accepted the Presidency of the Railway Convalescent Homes for 1945, in succession to Colonel Eric Gore-Browne, Chairman of the Southern Railway Company.

Sir H. Osborne Mance, having completed special duties on which he has been employed, has resigned his appointment as Director of Canals at the Ministry of War Transport, from December 1.

Sir Clive Baillieu, who is Deputy-President of the Federation of British Industries, and one of the British delegates to the International Business Conference meeting at Rye, New York, has been appointed Chairman of the committee dealing with cartels.

The Minister of Fuel & Power has announced the constitution of the Fuel & Power Advisory Council. The members are: Sir Ernest Simon (Chairman); Mr. Geoffrey Crowther; Sir John Greenly; Dr. E. S. Grumell; Sir Harold Hartley; Professor C. N. Hinshelwood; Professor John Jewkes; Viscount Ridley; Sir Robert Robinson; and Mr. Geoffrey Summers. The Secretary is Mr. R. N. Quirk.

The late Mr. Frank Dudley Docker, founder of the Metropolitan Amalgamated Railway Carriage & Wagon Co. Ltd., and later Chairman of the Metropolitan Carriage, Wagon & Finance Co. Ltd., formerly a Director of the Southern Railway Company, who at the time of his death was a Director of the Midland Bank Limited and the Birmingham Small Arms Co. Ltd., and Chairman of the Electric & Railway Finance Corporation Limited, left £887,692.

We regret to record the death in Chicago on September 1, at the age of 60, of Mr. Elmer Thomas Howson, Vice-President & Director of the Simmons-Boardman Publishing Corporation, U.S.A., and Western Editor and Editor, respectively, of our American contemporaries, the *Railway Age* and *Railway Engineering & Maintenance*. Mr. Howson relinquished the position of Division Engineer, La Crosse, with the Chicago, Burlington & Quincy Railroad in 1911 to join the staff of the *Railway Age* (then the *Railway Age Gazette*). He became Engineering Editor; and, after the acquisition by the Simmons-Boardman Publishing Corporation in 1916 (under the name of *Railway Engineering & Maintenance of Way*) of the *Railway Maintenance Engineer*, he became in addition Editor of that publication, the title of which was changed again, in 1923, to *Railway Engineering & Maintenance*. In 1919 he was appointed Western Editor of the *Railway Age*, and in 1931 was elected a Vice-President & Director of the Simmons-Boardman Publishing Corporation.

We regret to record the death on November 18, at the age of 60, of Commander Sir Charles Worthington Craven, Bt., O.B.E., R.N. (retired), Chairman & Managing Director of Vickers-Armstrongs Limited, Chairman of Gresham & Craven Limited and of the English Steel Corporation Limited, Deputy-Chairman of Vickers Limited, and a Director of Guest Keen Baldwins Iron & Steel Co. Ltd., Midland Bank Limited, and other companies. Sir Charles Craven had been Industrial Adviser to the Minister of Production since January, 1943. Recently he had been elected President of the British Employers' Confederation and he was Chairman of the Industrial Welfare Society. He was educated at Rossall School, and entered the Royal Navy in 1898. Later he served in submarines; and, after holding various commands, he was selected in 1910 for instructional duties. He retired in 1912, and then joined Vickers Limited as a Technical Adviser. He returned to the Navy in 1914, and served with submarines; but he was released in 1916, to supervise the construction of submarines and airships at Barrow. After the war he contributed largely to the success of the Barrow Works of Vickers Limited in securing British and foreign contracts. In 1919 he became a Special Director of Vickers Limited, and in 1923 was made Managing Director of the Barrow Works. In 1931 Sir Charles Craven was appointed Managing Director of all works and shipyards of Vickers-Armstrongs Limited (of which he had become a Director in 1928), and in the same year became Deputy-Chairman & Managing Director of the English Steel Corporation Limited. In 1935 he was appointed Chairman & Managing Director of Vickers-Armstrongs Limited. From January 1, 1936, he became Chairman of the English Steel Corporation Limited, and retained the Managing Directorship; he relinquished the latter office about two months ago, but retained the Chairmanship. He was appointed Deputy-Chairman of Vickers Limited as from January 1 last. From May to November, 1940, Sir Charles Craven was Chairman of the Air Supply Board at the Air Ministry; and from 1941 to 1942 he held the position of Controller-General of the Ministry of Aircraft Production. He was made O.B.E. in 1919, knighted in 1934, and created a baronet in 1942. A memorial service is being held at St. Margaret's Westminster, at 12.30 p.m. today (November 24).

The late Commander Sir Charles Craven
Chairman & Managing Director, Vickers-Armstrongs Limited, 1935-44

Mr. J. R. Pike, Assistant Chief Commercial Manager (Goods), L.M.S.R., has been elected Chairman of the Irish & English Traffic Conference for the coming year (see also page 531).

We regret to record the death on November 17, at the age of 73, of Colonel Sir Maurice Hugh Lowthian Bell, Bt., C.M.G., T.D., D.L., J.P., a Director of Dorman, Long & Co. Ltd.

Mr. G. S. McLay, whose services for five years have been lent to the Ministry of Supply by Stewarts and Lloyds Limited, has been released at his own request from the post of Director-General of Gun Ammunition Production. Mr. A. J. G. Smout, Director-General of Small Arms Ammunition, has been appointed Director-General of Ammunition Production, and will be responsible for the production of both gun ammunition and small arms ammunition.

Mr. L. R. Hedgcock has been appointed Sales Manager, Commercial Transport Department, Tecalemit Limited.

Mr. F. J. Burrows, retiring President of the National Union of Railwaymen, is a member of the commission, under the Chairmanship of Lord Soulbury, which is to visit Ceylon shortly in connection with constitutional reform.

Mr. F. Scothorne, Public Relations Officer, London Passenger Transport Board, is retiring today (November 24) after 41 years of service with London Transport and the London County Council. (See editorial note, page 506).

M. Raoul Dautry Appointed French Minister of Reconstruction

M. Raoul Dautry, formerly General Manager of the French State Railways, and subsequently a Director of the French National Railways Company, has been appointed Minister of Reconstruction & Town Planning in the French Government. He was Minister of Armaments before the Fall of France.

TRANSPORT SERVICES AND THE WAR—269

Improved Underground Railway Lighting

Better lighting in the underground railway carriages of London Transport will result from a slight modification of the light fittings. The interiors of the oblong box-pattern shades were painted white, excepting for a 3-in. black band at the lower edges. The whole interior is now to be white and this will materially add to the total volume of light.

Civilian Air Raid Casualties in October

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids in the United Kingdom during October:—

Killed (or missing believed killed)	172
Injured and detained in hospital	416

The casualties were classified as follow:—

	Men	Women	Under 16
Killed (or missing believed killed)	57	96	19
Injured and detained in hospital...	139	224	53

Inflation Fares in Greece

By the end of July last the general level of food prices in Greece was a thousand times higher than in pre-war days, and the situation deteriorated so rapidly that, by the end of September, the increase was already a million times. Enormous tram fares naturally resulted, but adequate facilities were arranged for the payment of such fares as half a million drachmæ. In April last, 500,000-drachma notes were issued, and these were followed by 1,000,000-drachma notes early in June, and by 5,000,000-drachma notes by the end of the same month.

Reichsbahn Training Schools

Additional Reichsbahn training schools have been instituted in Germany to secure the regular inflow of executive personnel necessitated by expanding requirements. The most recent railway school opened has been attached to the Hanover Reichsbahn Divisional Management. To provide training facilities on practical lines, all training schools have a miniature railway. Pupils attending classes for conductors must also undergo training at model booking offices where they are taught to handle the business of issuing tickets, and get acquainted with the numerous and diverse wishes with which they may be confronted by members of the travelling public.

"War Fares" in Germany

With the object of reducing the use of labour and material, standardised and simplified fares are being adopted on the transport undertakings throughout Germany, although losses in revenue are expected. In our issue of November 17 (page 497) we made reference to such adoption by the Reichsbahn in respect of its Berlin system of S-lines, and by the B.V.G. (Berliner Verkehrsgesellschaft). The Hamburg trams, underground (U-Bahn), buses, and "Wa-Bahn" (Walddörferbahn from Ohlstedt to Wohldorf), adopted a uniform standard fare in the Hamburg area on September 1. The fare is 20 pfennig for any distance (without transfer) on trams, buses, and on the U-Bahn, with a special fare (10 pfennig) for children and non-commissioned officers (up to but excluding sergeants). Weekly seasons, costing RM. 2.30, are valid without discrimination on trams, buses, and ferries, and on the U-Bahn, for any number of trips and for any distance; the same arrangement applies in respect of monthly seasons costing RM. 10.

Volunteer Conductors on Leipzig Trams

To help in surmounting the difficulty of depleted traffic personnel, the Leipziger Verkehrsbetriebe (Leipzig Traffic Organisation), operating both tram and bus services, sought the assistance of volunteer conductors or "honorary traffic assistants" (*ehrenamtliche Fahrdiensthelfer*) in August last. These are male passengers, from the staffs of the various municipal offices and private firms, who, when using trams or buses on their daily trips to and from work, are authorised to act as "honorary assistants" to the conductors by giving the signal bells, supervising passengers boarding and alighting, and in other ways expediting the traffic. The "assistants" wear a special badge, and have to report to the conductor on boarding a tram or bus, and before leaving it.

New Buses for Ankara

The Ankara bus service, established in 1935, has been operated with vehicles built and equipped in Soviet Russia. To improve and extend the services, the municipality ordered a number of buses in Switzerland and Germany some time ago (before relations between Turkey and Germany were broken off), and the order placed in the

U.S. Transportation Corps Assembly Depot

An impression by Evelyn Cooke, civilian artist employed by the U.S. Transportation Corps in Great Britain, of the assembly depot which was the subject of an article in our January 21, 1944, issue. At this depot prefabricated parts brought from America are assembled into railway rolling stock for use with the Allied armies on the Continent of Europe

latter country was probably cancelled. In addition, 20 chassis for motorbuses were allocated to the Ankara municipality by the Turkish Ministry of Commerce some time ago; these have arrived, some at Istanbul and some at Iskenderon (Alexandretta), but the bodies have yet to be built.

G.N.R. (Ireland) Winter Train Services

Considerable alterations have been made to certain trains of the G.N.R. (I.) serving Londonderry. The 1.5 p.m. from Londonderry to Belfast leaves at 12.10 p.m. and reaches Belfast at 4 p.m.; to connect with this, the 11.25 a.m. from Bundoran starts at 10 a.m., and also reaches Londonderry, by connection at Enniskillen, at 2.35 p.m. The 11.30 a.m. from Londonderry to Bundoran leaves at 12.10 p.m., and there is a new train from Londonderry to Omagh at 10.50 a.m. The 1.5 p.m. from Londonderry to Bundoran is discontinued, but a new train leaves Londonderry for Enniskillen at 1 p.m., reaching Omagh at 2.23 p.m., and Enniskillen at 3.40 p.m. The 3.50 p.m. from Londonderry to Enniskillen is discontinued, also the 3.25 p.m. from Omagh to Londonderry; but there are new trains from Omagh to Londonderry at 1.50 and 5.5 p.m., due at 3.10 and 6.28 p.m.

Christmas Train Services in Eire

The Great Southern Railways Company is considering the possibility of restoring a normal passenger train service on a 6-day-a-week basis during the Christmas holiday period. If this temporary resumption of services should be adopted, it is unlikely to last more than a fortnight.

Wartime Operation in the U.S.A.

EXTRA BEDS TO MAKE IN WARTIME
In peacetime, multiple-berth rooms were often taken by single occupants. Now, many business associates patriotically arrange to share such accommodations to save war-vital train space.

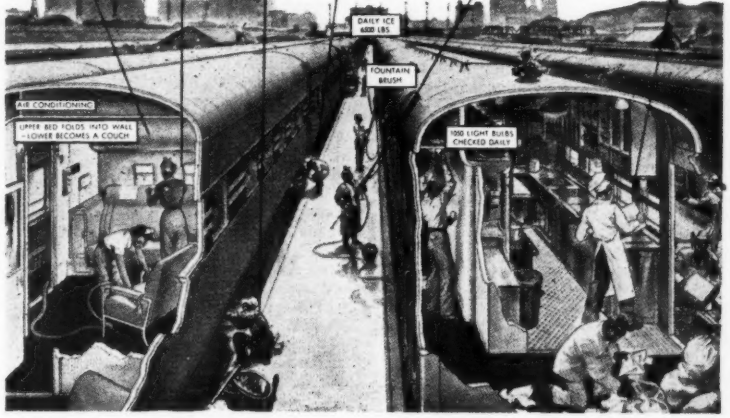
SAFETY FIRST, LAST, ALWAYS!
Brakes are thoroughly tested twice at the yard, and again at the station before the train starts its run. No shortage of manpower interferes with that strict safety rule.

WOMEN AT WORK
With 25,600 New York Central men in uniform, thousands of women help keep wartime traffic moving. Car service is among the many railroad jobs needing more women *now*.

THEY MAKE A CLEAN SWEEP
Rooms on the 20th Century are vacuumized and thoroughly cleaned daily in addition to periodic washing of rugs and upholstery.

SEVENTEEN INSPECTIONS
New York Central cars get 17 safety inspections at the yards ...plus frequent shop check-ups by mechanical and electrical testing devices.

GETTING IN THE GROCERIES
Dining cars are rationed by their volume in past months. So, with travel growing, Central's meal-planning is even harder than yours at home.


DAILY ICE 6000 LBS
FOUNTAIN BRUSH
AIR CONDITIONING
UPPER BED FOLDS INTO WALL—LOWER BECOMES A COUCH
1050 LIGHT BULBS CHECKED DAILY

Housekeeping headaches of the "CENTURY"

Travel Volume up... Manpower down... and the 20th Century Limited plus 800 other New York Central trains to service every day!

HALF AN HOUR AGO, some 200 wartime passengers stepped off the 20th Century Limited. Already a switch engine has hustled the empty train out to the yards. And now New York Central service crews swarm over it.

Hammers clink against steel. Fountain brushes spurt against windows. Electric trucks hustle about with fresh ice and linen and groceries.

War adds both urgency and difficulty to the daily servicing of more than 800 New York Central trains. Travel has doubled. Supplies are scarce. And manpower is even scarcer.

But essentials still get 100% attention. And shorthandedness has even taught new short cuts, new methods that will mean greater efficiency when Victory frees America's railroads to bring you the finer travel of tomorrow.

NEW FREE BOOKLET with fascinating, cutaway pictures that take you into a locomotive cab, troop train, caboose, hospital car, Grand Central Terminal, and other places "BEHIND THE SCENES OF A RAILROAD AT WAR." Write to New York Central, Room 1221E, 466 Lexington Ave., New York 17, N. Y.

BUY MORE WAR BONDS

NEW YORK CENTRAL SYSTEM

New York Central

ONE OF AMERICA'S RAILROADS—ALL UNITED FOR VICTORY

One of the admirable series of informative advertisements issued by the New York Central System. The wartime references will be noted. For example, there are extra beds to make because of more frequent sharing of accommodation to save vital train space. Also, thousands of women are helping to replace the 25,000 New York Central men serving with the Armed Forces

Farewell Dinner to Mr. H. B. Webster

A meeting of the Irish & English Traffic Conference on November 9 was made the occasion of a ceremony to mark the retirement of Mr. H. B. Webster (L.M.S.R.), in whose honour a dinner was held. Mr. Webster, who, before his retirement, held the position of Assistant (Rates & Charges) to the Chief Commercial Manager, L.M.S.R., had been Chairman of the Irish & English Traffic Conference for 19 years.

The dinner was presided over by Mr. R. W. Sinnott (British & Irish Steam Packet Co. Ltd.), who, in making a presentation to Mr. Webster as a mark of the esteem in which he was held by all members of the conference, spoke of his delightful personality, and paid tribute to the skill and ability with which for so long he had presided over the deliberations of the conference. In support of all which had been said by Mr. Sinnott, other speeches were made on behalf of the Irish cross-channel steamship companies, and of the railways of Eire, of Northern Ireland, and of Great Britain.

Mr. Webster, in reply, said that he would never forget the good times he had spent as Chairman of the conference, and expressed his keen appreciation of the help always given him by all members.

Others present included :—

Messrs. H. Mack and J. L. Thompson (Belfast, Mersey & Manchester Steam Ship Co. Ltd.); R. McDowell (Ulster Imperial Line); E. L. Brown (British & Irish Steam Packet Co. Ltd.); G. Miller (Burns & Laird Lines); W. Russell (Clyde Shipping Co. Ltd.); P. Duggan (Limerick Steamship Co. Ltd.); T. F. Brazil (G.S.R., Eire); H. S. Knott and W. Atkinson (G.N.R., Ireland); C. Bell (Northern Counties Committee, L.M.S.R.); R. H. Watts and G. H. Bowes (L.N.E.R.); J. R. Pike, A. J. Rice, A. J. Broughton, T. E. Jones and G. H. Barnes (L.M.S.R.); C. H. Coe, H. D. Poole, and F. S. Veltom (G.W.R.); W. Stone (Southern Railway); and F. R. Reid (Secretary, Irish & English Traffic Conference).

Awards to Southern Railway Men

The heroism of Southern Railway men on duty was recognised recently by the granting of two George Medals, three British Empire Medals and a National Commendation. At the Charing Cross Hotel on November 13, additional awards were made by the Southern Railway Company to the men concerned. Colonel Eric Gore-Browne, the Chairman, made the presentation of the company's awards and was supported by Sir Eustace Missenden, the General Manager, and chief officers of the company.

The George Medallists were Driver T. Tichener and Goods Guard W. J. Quinton, of Redhill, who won their awards in connection with an explosion in ammunition wagons. The British Empire Medals were awarded to Driver A. T. Griffin, Fireman H. A. Dowle and Guard W. Ward, of Reading, in connection with a petrol-train incident, and the National Commendation was to Crane Driver Henry Gough, of Newhaven, for the part he took in connection with a live torpedo loose in Newhaven Harbour.

RAILWAY CONSTRUCTION IN PORTUGAL.—Reuters reports that the Portuguese Ministry of Communications has opened additional credits of £100,000 for the construction of railways.

Parliamentary Notes

Transport Facilities in Central London

On the Motion for the adjournment of the House of Commons on November 14, Capt. A. S. Cunningham-Reid (St. Marylebone—Ind.) raised the question of the Home Office Regulation which came into force on Monday, November 20, and continues until January 13, by which large numbers of shops in the Central London area are compelled to close at 4 p.m. He asked how a worker, who worked and lived in Central London and whose work took him or her up to, say, 5 p.m. or 5.30 p.m., was to get the shopping done when the shops which were available to them closed at 4 p.m. He believed that all the departments except the Ministry of War Transport were against the imposition, and he understood that the main reason for the objection of that ministry was that unless the hours were staggered, there would be undue congestion. Why, if traffic had worked more or less satisfactorily up to then, was it necessary to change conditions during the next seven weeks, and especially over the Christmas period? He could well understand that, earlier on, it was very desirable for people to get to their homes, and to what security they could find there, before the blackout, but now the same necessity did not arise. Thousands were not going to have a fair opportunity to do the shopping for the various necessities of their existence as well as for Christmas. The regulation was grossly unfair, especially to the small trader.

Wing-Commander R. Grant-Ferris (St. Pancras North—C.) said that large numbers of people affected did not use the Ministry of Transport's vehicles at all. Many of them were L.N.E.R. and G.W.R. workers who had to walk home, and they would not be able to do any shopping during December.

Mr. Evelyn Walkden (Doncaster—Lab.) said that they did not want people crowding London's buses, Tubes and the S.R. and G.W.R. when railway workers wanted to get home.

Sir Herbert Williams (South Croydon—C.) said that the situation as to passenger road transport was bad. At the time a sub-committee (of which he was Chairman) of the Select Committee on National Expenditure investigated the question it was even worse than it was now, and one of the recommendations it made so as to avoid three lots of people trying to get home at the same time—factory workers, shop assistants and customers—was, that something should be done about the hours of closing shops during the winter. The recommendation was made in the light of the appalling transport situation.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) said they were not changing anything in comparison with what they had done for the last four years. In the second place, they did not make people travel earlier and move the peak forward, the peak of traffic moved itself forward, because people who stayed in their offices later in summer left much earlier during the winter months, and the winter peak, whether they liked it or not, due to the habits of the population of London, which they could not control, was from 4.30 p.m. to 6 p.m. At a meeting in October the shopkeepers asked for a later hour, and in deference to their wishes, the Home Secretary, after consulting with the Minister of War Transport, made an important concession from the practice of previous years. Up to now they had had 12 to 13 weeks—in November, December, and January. This year they had only seven weeks. It was a concession to the demand made because this was the fifth year of the war. From January 13 until March 3, under another regulation, the closing hour was to be 6 p.m. After that there was to be no wartime restriction; the ordinary peacetime regulations applied.

They had staggered factory workers all around London all through the year. They did not like it; it meant that they had to get up half an hour earlier in winter and travel in darkness. But unless they had done that they could not have handled their traffic throughout the war. The staggering of shop hours was a small contribution toward the general policy to which factory workers themselves were making a great contribution all the year round. They had not been able to apply the same policy to theatre traffic at a later hour. But theatre and cinema traffic was, by the different times of closing, already partially staggered, and apart from that it did not come at the same time as the workers' peak of traffic. Everybody wanted relaxation; everybody was weary. But transport was still in the war. Our transport machine was geared to the urgent necessities of war. If they adopted the proposal they would have to put on more buses at the peak hour, and they could not do it. They had not enough workers even to keep their normal scheduled services running as they should. They were trying to improve their services and do it when they had the maximum sickness among their workers. If they had a bad winter this time they would fall down badly on their scheduled services.

In reply to Mr. Walkden, Mr. Noel-Baker said that the regulation did not apply to the small shopkeeper with only two assistants, and did not apply to food shops, so that workers would, therefore, have a chance to get to those classes of shops.

Answering Wing-Commander Grant-Ferris, Mr. Noel-Baker said that he could not hold out any hope that there would be relaxation during the week before Christmas.

Transport of Officer Prisoners of War

Earl Poulett, in the House of Lords on November 15, asked the Government whether it was aware that enemy officer prisoners-of-war were being taken by train without reservations being made for them in advance, and that this necessitated fare-paying passengers being turned out of their compartments, not only during the day, but also at night. He inquired whether the Minister responsible would take the necessary steps to ensure that proper arrangements were made by the authorities in charge of prisoners-of-war, whereby those officer prisoners were conveyed with the minimum of interference to travellers.

He said that there had been many complaints both in the press and in the House of Commons on this subject and also among the general public when it had seen trains conveying prisoners-of-war, with the prisoners comfortably seated while the general public was crushed like sardines in a box. It also had complained bitterly when there had been coaches added to the train that were locked for the benefit of prisoners and it had complained about locked carriages in certain trains. Personally, he had no objection to the first two things that he had mentioned, but as to the third (the locked carriages in certain trains) he considered it somewhat unfair to the public when such trains already were crowded. It seemed to him that those prisoners might be taken by other means. Since the war began many through coaches had been put on that never existed before so that there should not be the usual scramble for seats at railway junctions. If those through coaches (which might number only one or two) had two compartments or one compartment reserved for prisoners-of-war, that meant that the other compartments were going to be overcrowded. He agreed that prisoners-of-war must be kept separate from civilians and the general public. The proper arrangement, therefore, for the conveyance of prisoners was for carriages or compartments to be locked and reserved well in advance. There seemed to be a practice growing up, when moving two or three prisoners, not to make reservations in advance, with the result that when the train arrived at a station, the officer in charge of the men searched the train for an empty compartment. When the officer failed to find the necessary compartment, he had to select one. That meant that the occupants of the compartment which he selected were turned out. That state of affairs need not exist if the authorities responsible for moving prisoners took the trouble to make proper arrangements with the railway companies, or, should he say, with the Government-controlled railways.

Earl Poulett then related his experience one night when travelling from London to Scotland. He said he left London at approximately 10 p.m. "In a certain Midland town we arrived at about 1.15 a.m. We were dozing and were awakened by an officer who said: 'You have to get out, I have two prisoners and they have got to have this accommodation.' I expostulated and said I thought it was ridiculous and asked for the stationmaster. The assistant stationmaster came and said: 'I am afraid there is nothing else for it.' The result was that I and the other occupants had to turn out. The other occupants included my wife and a naval officer. We had either to get into the corridor or to be squeezed into another compartment, if possble. That is what happened."

Our own people, in our own country, should be considered a little more than they had been considered so far, certainly as to railway travelling. He quite appreciated the difficulties in moving prisoners but they had had five years of war and the Government controlled one of the greatest transport organisations in this country. Surely therefore it was not too much to ask that the British traveller should not be subjected to such inconveniences as those he had mentioned.

Lord Croft (Joint Under Secretary of State for War) said that the regulations laid down that when prisoners-of-war were being taken by train, accommodation must be reserved in advance. So that passengers should not be inconvenienced those arrangements in general were carried out properly and satisfactorily. As to the case to which Earl Poulett had drawn attention, he was informed that the reservations were properly made but that some unauthorised person removed the labels from the compartment. He very much regretted to hear that Earl Poulett, when he was asked to move out of that compartment, did not have vacant seats pointed out to him. If he was compelled, in those circumstances and under most unpleasant conditions, to remain in the corridor, he could only say he was extremely sorry. He had explained how it occurred and he was under the impression that there was alternative accommodation in which he could have been seated. He was sorry if that information was incorrect.

Earl Poulett said it was not exactly

correct because the train was so filled that it was only by the method of squeezing and pushing that it would have been possible to sit down. He might say that his wife found it impossible to do so and remained in the corridor for the remaining five hours.

Lord Croft said he was sorry to hear that, but the fact remained that the regulations were as he had stated. If Earl Poulett or anybody else was able to assist them in finding out who removed the labels, he would be very glad to pursue the matter further.

Questions in Parliament

Passenger Train Delays

Mr. T. E. Harvey (English Universities—Ind.) on November 16 asked the Parliamentary Secretary, Ministry of War Transport, whether his attention had been called to the frequent serious delays in long-distance train services and, in particular, the 5.30 p.m. train from Leeds to Kings Cross; and whether, if such delays cannot be avoided, the timetable would be altered to correspond with the actual running of the train.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) stated in a written answer: The schedules for passenger trains are based on timings which the railway authorities reasonably can hope to maintain and which, in fact, normally are maintained. Delays inevitably result from a variety of causes, including, in particular, the provision of special service trains, of which large numbers are required each day. If a train was regularly the same amount behind schedule at each point in its journey, it obviously would be desirable to alter its timing; but in practice this rarely happens. I am making inquiries about the 5.30 p.m. train from Leeds to Kings Cross and will write to Mr. Harvey when these inquiries are complete.

Fares for Parents of Evacuated Children

The Rev. R. W. Sorensen (West Leyton—Lab.) on November 15 asked the Parliamentary Secretary, Ministry of War Transport, if he would consider granting to parents of evacuated children a more frequent reduction in fares to see their children more than once in two months; and whether reduced day fares on railways were likely to be restored in the near future.

Mr. Noel-Baker: It is expected that the traffic during the coming winter will impose a heavy strain on the railways. I regret, therefore, that I should not feel justified in agreeing either to the restoration of cheap-day fares, or to an increase in journeys at reduced fares, even for parents visiting their evacuated children.

Mr. Sorensen: Is the Parliamentary Secretary aware that many of these parents do see their children so that, if they were granted these facilities, they would not travel more, but would have a little assistance to their pockets?

Mr. Noel-Baker: Long experience has shown us that reduced fares encouraged travelling. They mean extra passengers, and we cannot afford to have any more.

Marseilles to Geneva Railway

Maj.-Gen. Sir Alfred Knox (Wycombe—C.) on November 14 asked the Secretary of State for War whether he was satisfied that the railway from Marseilles to Geneva was now carrying the two trains per week required for the transport of prisoners-of-war parcels; and whether he had taken steps to ensure that the parcels on arrival at Marseilles would be forwarded at once to Geneva.

Sir James Grigg (Secretary of State for War) stated in a written answer: As I said to Sir Alfred Knox on November 7, the volume of traffic for the carriage of parcels onwards from Marseilles goes beyond anything we could have expected a month ago due to the unavoidable effect on communications of a retiring enemy and of advancing allied operations. I understand that Red Cross supplies at present are leaving Marseilles daily in sufficient quantity. So long as operations continue, I cannot guarantee that this traffic will never have to be held up for military reasons, but I can assure Sir Alfred Knox that all possible steps have been taken to ensure that the flow is maintained.

Empty Lorry Journeys

Captain W. F. Strickland (Coventry—C.) on November 1 asked the Parliamentary Secretary, Ministry of War Transport, how many road lorries were despatched empty from London to Gloucester between October 15 and 19 to pick up fibre boards; whether such loads were available at that destination; and by whose instructions the vehicles were despatched.

Mr. Noel-Baker: Between October 15 and 19, the road haulage organisation sent 77 vehicles from London to Gloucester, 45 of them carried no loads on their outward journeys, for the reason that none was available. Some of the vehicles brought back fibre board, which was required urgently for the repair of houses in London which had been damaged by flying bombs; others carried loads of the highest priority for the armed forces of the United States, or other essential and urgent traffic.

Captain Strickland: Could the Parliamentary Secretary tell me how many vehicles went to Gloucester and did not pick up loads there and were then sent from Gloucester to other places? Will he also tell me who is responsible, and also whether there is any telephone communication to see if loads were available before the vehicles were despatched from London?

Mr. Noel-Baker: The road haulage organisation of the Ministry was responsible, and they took all proper precautions to get loads both ways if they could be got. On the return journey the loads carried were all essential and of the highest priority. They included a secret move for the American army which had to be carried out within 48 hours.

Lighting of London Tube Stations

Sir Stanley Reed (Aylesbury—C.) on November 15 asked the Parliamentary Secretary, Ministry of War Transport, whether he would concert with the L.P.T.B. measures to improve the lighting at the principal tube stations.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport): To save fuel, the lighting of tube stations has been reduced, but I hope Sir Stanley Reed will agree that, in general, it is not inadequate. If he will let me know of any stations at which, in his opinion, improvements are required, I will gladly consider the matter with the London Passenger Transport Board.

Sir Stanley Reed: Will the Parliamentary Secretary accompany me on a dark night to the entrances to some of the tube stations? He will then find out what death traps they are.

Mr. Noel-Baker said he had been to some of the stations.

Peruvian Corporation Limited

Mr. Louis H. Kiek, who presided, in the absence of Mr. Oliver Bury through illness, on November 9 at the 54th annual general meeting of the Peruvian Corporation Limited, said that the improved revenue position might be most clearly illustrated by a brief recapitulation of the amounts of net sterling revenue available for each of the last six book years.

1938-39, £46,015, equal to only 1·17 per cent. on the outstanding debentures (about £4,000,000).
1939-40, £125,588, equal to only 3·18 per cent.
1940-41, £123,303, equal to only 3·12 per cent.
1941-42, £197,913, equal to only 5·01 per cent.
1942-43, £240,059, equal to only 6·08 per cent.
1943-44, £328,000, equal to only 8·20 per cent.

These results reflected the greatest credit on Mr. Hixson, the corporation's able representative in Peru, and on his collaborators and staff throughout the service. Time only could show whether the heavily increased traffic, stimulated as it had been by allied war demands, would be fully maintained when this immediate urgency had ceased. But there were sound reasons for reasonable confidence in the unmistakable symptoms of renewed mineral and industrial resources so that, subject to the unpredictable vagaries of exchanges, and assuming a continuance of stable political conditions, the post-war period might be faced without perturbation.

General trade conditions had been satisfactory with good demand for the four principal products of the country—cotton, sugar, copper, and petroleum; the demand had also been maintained for products for war purposes, such as lead, zinc, vanadium, rubber, quinine, etc. Gross receipts of the railways and lake steamers again constituted a record and showed an average of 21 per cent. over the record of last year. The tons of freight carried were 1,630,124, as compared with 1,448,828 last year; passengers numbered 3,025,466, against 2,842,724. Expenses had continued to increase relatively, particularly on the Central Railway. This railway carried the heaviest traffic in war materials and, because of the steep grades, it had suffered most from the lack of new equipment and by the overworking of the old. On the Southern Railway and Lake steamers the better tariffs coupled with less difficult working conditions had resulted in a satisfactory net increase. In Bolivia conditions had been less favourable to the corporation than in Peru and the Guaqui Railway had been faced with labour and other difficulties arising out of the unsettled conditions in the country. The exchange remained at the low level of Bs. 170.30 to the £. Results on the northern railways showed no particular change with the exception of the Trujillo Railway, which had benefited by an increase of sugar traffic.

The report and accounts were adopted unanimously.

AUSTRALIAN RAILWAYS AND FEDERAL GOVERNMENT.—According to the *New South Wales Official News Bulletin*, the Federal Cabinet has a plan for bringing all Australian railways under single control. It was to be submitted to the Premiers' Conference recently, and is believed to provide for a Federal transport council of representatives of states with the Federal Minister for Transport as Chairman. The functions proposed are said to be: (1) rationing of transport and dovetailing of interstate services; (2) planning of improvements and extensions to enable the largest areas to be served; and (3) allocation of coal supplies to states. According to official predictions the council would pave the way for eventual control by the Commonwealth of all railway systems.

Notes and News

L.M.S.R. New Staff Canteen.—A canteen for L.M.S.R. staff was opened on November 13 at Lothian Road Goods Station, Edinburgh, by Mr. R. D. Kerr, District Goods & Passenger Manager, Edinburgh, L.M.S.R.

Antofagasta Railway Debenture Redemption.—The Antofagasta (Chili) & Bolivia Railway Co. Ltd. announces that £25,214 of 5 per cent. debenture stock has been drawn for redemption at par on January 1 next. The amount outstanding will then be £194,878.

Agreed Charges.—Applications for the approval of 47 more agreed charges under the provisions of Section 37 of the Road & Rail Traffic Act, 1933, have been lodged with the Railway Rates Tribunal. Notices of objection must be filed with the Deputy Registrar of the Tribunal on or before December 5.

East Kent Light Railways Company.—The petition by the directors praying the confirmation by the High Court of a scheme of arrangement between the company and its debenture stockholders is directed to be heard before Mr. Justice Vaisey on Tuesday, November 28. The scheme was explained on page 502 of *The Railway Gazette* of November 17, 1944.

Associated Equipment Co. Ltd.—A final dividend is recommended of 12 pence per £1 unit of ordinary stock, making 18 pence for the year ended September 30, 1944, which is equal to 15 per cent. for the year, subject to tax at 10s. in the £. Net profits for the year (subject to final audit) are stated to be £227,500, the same as last year.

New York Central Dividend.—The New York Central Railroad Company has declared a dividend of $1 a share, payable on January 15. In January, 1944, $1 was paid, and in July 50 cents. In 1943, the total paid was $1.50. In the years 1932-1942, inclusive, no dividend was paid. The distribution for 1931 was 6 per cent., compared with 8 per cent. for 1929 and 1930.

South African Railways & Harbours.—The results of working of the South African Railways & Harbours for the period April-June, 1944, show railway revenue at £12,422,585 and expenditure at £12,382,322 (surplus of £40,263). The working of harbours, steamships, and airways show a deficit in each case. The total revenue for all services for the three months was £13,039,641, and the expenditure was £13,247,386; there was thus a gross deficit of £207,745. Net revenue appropriation accounted for £246,074, and there resulted a total net deficit of £453,819. The results of working of all the services of the Administration in June, 1944, show a net deficit of £130,980.

Railway Electrification in Japan.—"Experiences of an Engineer in China and Japan" was the subject of a talk given recently by Mr. J. Lindsay in Heriot-Watt College, Edinburgh, under the auspices of the Institution of Electrical Engineers, Scottish Students' Section. Mr. Lindsay assisted in the installation of electric sub-stations for the electrification of the Tokio-Kobe railway, and remarked that in carrying out that project the Japanese had used the services of engineers of three countries, namely, Britain, the United States, and Switzerland. The line was approximately the same distance as from Edinburgh to London, and was constructed between 1925 and 1932. Japanese workmen, he said, might be quicker in grasping ideas than the Chinese, but the hand work of the Chinese was greatly superior in quality.

Chilean State Railway Developments.—Thanks largely to a credit of $5,000,000 from the Export-Import Bank, the Chilean State Railways are making numerous improvements and extensions. The Antofagasta (Chile) to Salta (Argentina) construction across the Andes is proceeding satisfactorily. A quantity of equipment, including seven electric locomotives, is reported to have been ordered from the U.S.A.

Chilean Railway Rails for Argentina.—The Chilean Government recently authorised the export to Argentina of railway rails totalling 3,200 metric tons. These rails originate from the Tarapaca saltpetre mines (in the north of the country, to the east of the port of Iquique) which are said to have closed and where the railway plants are being dismantled. A further 8,000 metric tons of rails are said to be available at Tarapaca.

Metallurgical Studies of Steel Rails.—On Tuesday last a paper was read before the Railway Engineering Division of the Institution of Civil Engineers by Mr. Hugh O'Neill, M.Met., D.Sc. (L.M.S.R. Research Department) entitled "Metallurgical Studies of Rails." The paper contained a detailed metallurgical description of typical rail steel, a suggested method for recording track failures, and some proposals for dealing with various descriptions of trouble to which the track is subject. We hope to summarise this paper in a forthcoming issue.

Civil Engineers in Ireland.—Mr. P. J. Raftery, in the course of his presidential address in Dublin to the Institution of Civil Engineers in Ireland on November 6, said that the institution was one of the first to recognise, as training for the profession of a civil engineer, the courses followed in the engineering school of a university, as distinguished from the pupilage or apprenticeship system. At present 78 per cent. of corporate institution members held university degrees in engineering. He hoped that it would soon be possible to establish a higher diploma of civil engineering to be awarded to corporate members who passed a test after practising not less than five years.

Stothert & Pitt Limited.—The report for the year to June 30, 1944, shows a trading profit of £143,529 (£170,371). After providing for war risks insurance and other war expenses, and after debiting £44,351 to income tax, £2,050 to income tax reserve, £35,000 to E.P.T., and £9,870 to interest charges and directors' fees, there were profits of £52,257 (£44,461). Adding £30,920 makes £83,177 available. The dividend on the ordinary shares for the year is maintained at 10 per cent., less tax, and the bonus is raised from 2½ per cent., less tax, to 5 per cent., less tax. A sum of £30,000 is placed to war contingency reserve and £32,433 is carried forward.

Institute of Transport.—Discussion Groups.—The first meeting of the Portsmouth Discussion Group of the Institute of Transport for the 1944-45 session was held last September, and it is the intention to hold a meeting on the second Wednesday of each month up to, and including, April, 1945. The Honorary Secretary of the group is Mr. L. S. Heath, A.M.Inst.T., of Portsmouth Corporation Transport. Meetings are held at the offices of Southdown Motor Services Limited. The Edinburgh Discussion Group arranged by the Scottish Section of the Institute held its first meeting of the current session on October 18. The meetings of the group are held at the North British Station Hotel. The secretarial work is in the charge of Mr. Laurence C. Greig, Honorary Secretary of the Scottish Section, 2, St. James Square, Edinburgh, 1.

Air Service to South Africa.—As soon as permission of the Government is forthcoming, the British Overseas Airways Corporation is in a position to establish a passenger air service between the United Kingdom and South Africa, assisted on certain sections of the route by South

British and Irish Railway Stocks and Shares

Stocks	Highest 1943	Lowest 1943	Prices Nov. 21, 1944	Prices Rise/Fall
G.W.R.				
Cons. Ord.	65¼	57¼	59½	− ¼
5% Con. Pref.	120¼	108	119½	+ 1
5% Red. Pref. (1950)	110¼	106	105	—
5% Rt. Charge ...	137½	123½	133½	+ 1
5% Cons. Guar. ...	135½	121 7/16	131½	+ 1
4% Deb.	118	107½	117	+ ½
4½% Deb.	119	109 7/16	117½	—
4½% Deb.	124½	116	122½	—
5% Deb.	138	127	134½	—
2½% Deb.	77	72½	74½	—
L.M.S.R.				
Ord.	34 13/16	28	31½	—
4% Pref. (1923) ...	66¼	58	60	+ ½
4% Pref.	80½	73	79	+ ½
5% Red. Pref. (1955)	105¾	102	103½	—
4% Guar.	107	98½	105	+ ½
4% Deb.	109½	103¼	109½	+ 1
5% Red. Deb. (1952)	111½	108	108½	—
L.N.E.R.				
5% Pref. Ord. ...	12 3/16	7⅞	8½	—
Def. Ord.	5⅛	3⅛	4	—
4% First Pref. ...	66½	57½	61	+ ½
4% Second Pref. ...	36½	30½	33	—
5% Red. Pref. (1955)	99⅜	93	100	+ ½
4% First Guar. ...	102¾	94	102½	+ ½
4% Second Guar. ...	93½	85⅜	92½	− ¼
3% Deb.	86⅜	78⅜	86	+ 1
4% Deb.	109 7/16	101⅜	108	+ 1
5% Red. Deb. (1947)	106½	102	102½	+ ½
4½% Sinking Fund Red. Deb.	108	103½	105½	—
SOUTHERN				
Pref. Ord.	80	72½	76½	—
Def. Ord.	26¾	20⅝	25½	—
5% Pref.	119½	106⅝	118⅜	+ 1
5% Red. Pref. (1964)	114	108½	114½	—
5% Guar. Pref. ...	136	122	130½	+ 1
5% Red. Guar. Pref. (1957)	117	109¾	114½	—
4% Deb.	117½	106	116	+ ½
5% Deb.	137	126	133	—
4% Red. Deb. (1962-67)	112	106½	109½	—
4% Red. Deb. (1970-80)	112	107	110½	—
FORTH BRIDGE				
4% Deb.	109	104⅞	104	—
4% Guar.	105	102½	103½	+ 1
L.P.T.B.				
4½% "A"	125 11/16	114	121½	—
5% "A"	133 7/16	123	131½	+ 1
3% Guar. (1967-72)...	100½	97	99	—
5% "B"	124	114	122½	+ 1
"C"	72	53	68	—
MERSEY				
Ord, ...	34½	27	34½	—
3% Perp. Pref. ...	68	59½	69	—
4% Perp. Deb. ...	104	102½	103	—
3% Perp. Deb. ...	83	78½	82	—
IRELAND* **BELFAST & C.D.**				
Ord.	9	6	8	—
G. NORTHERN				
Ord.	24½	16	29½	—
Pref.	—	—	47½	+ 7/16
Guar....	—	—	68½	+ 1½
Deb.	—	—	89	+ 1
G. SOUTHERN				
Ord.	30	9½	64	+ 3
Pref.	30	11	66	+ 5
Guar.	64	26½	79½	+ 1½
Deb.	88⅛	51⅜	98⅝	+ ⅜

*Latest available quotation

OFFICIAL NOTICES

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

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African Airways. The Corporation already maintains air services to South Africa, but these carry only Government priority passengers.

Nyasaland Railways Limited.—The report for the year 1943 shows that the gross receipts of the railway, including the Northern Extension and the Lake Service, amounted to £219,021 (£200,079). Working expenses were £122,086 (including £31,887 for renewals), against £109,627 (including £30,642 for renewals), and the operating ratio, including renewals, was 55·74 per cent., against 54·78 per cent. Total net revenue was £142,173 (£135,126). After reserving £51,702 (£51,407) for taxation, providing for interest charges, and £20,654 for redemption of the 5 per cent. "A" debenture stock there is a balance of £863 to be carried forward. Excluding lake service the tonnage carried in 1943 was 103,637 (97,953), and the number of passengers was 273,409 (214,930).

New Railways for Peru.—The Bay of Matarani in southern Peru has been converted into a modern port at an outlay of nearly £1,000,000. Matarani is 9 miles north of Mollendo, which is described as an open roadstead exposed to the Pacific, at which the handling of passengers and goods by launches and barges is not only costly but often hazardous. To give southern Peru access to the new harbour of Matarani, some 39 miles of railway are being built, linking Matarani with the main line (Mollendo to Arequipa) of the Southern Railway of Peru. This new connection will join the older line at La Joya. A shorter railway is to connect Matarani direct with Mollendo. Shortage of shipping space and materials, in war conditions, have been important factors in delaying the completion of these two railways.

Institution of Civil Engineers Awards.—Awards were made recently by the council of the Institution of Civil Engineers for papers read either at ordinary or engineering-division Meetings during the session 1943-44. The names of some of the recipients are given hereunder. Mr. V. A. M. Robertson, C.B.E., M.C., as a Member of Council, is ineligible to receive an award for his paper on "The Engineering Evolution of the London Passenger Transport Board"; and the council has expressed to him the thanks of the Institution. Telford Premiums have been awarded to Mr. B. D. Richards, B.Sc. (Member), for his paper on "Post-War Transport in Great Britain"; Mr. J. C. L. Train, M.C. (Member) for his paper on "Organisation in Relation to Engineering Output and Efficiency on the London & North Eastern Railway"; Mr. E. C. Johansen, for his paper on "Experiments on Reinforced Concrete Sleepers"; and to Dr. F. G. Thomas, Ph.D., B.Sc. (Associate Member), for his paper on "Experiments on Concrete Sleepers." Trevithick Premiums have been awarded to Mr. H. R. Reynolds (Associate Member) for his paper on "Soil Mechanics and the Railway Engineer"; and to Mr. M. F. Barbey (Associate Member) for his paper on "Some Soil Mechanics Problems on the London Midland & Scottish Railway." A Webb Prize has been awarded to Mr. C. E. Fairburn, M.A. (Member), for his paper on "The Electrification of the Wirral Lines of the London Midland & Scottish Railway."

Railway Employees Vindicated.—At the Devon Assizes on November 11 a libel action brought by members of two gangs of permanent way employees of the Great Western Railway Company against an inspector of police of the Royal Marines was withdrawn by consent on a full apology being tendered. The defendant had written to the G.W.R. District Traffic Manager at Plymouth alleging that his boat laid up at the moorings had been broken into by employees of the company. His letter added:—"Although I am not in a position to accuse them, a considerable amount of equipment has been stolen." Realising the identity of the men referred to in the letter, the company asked the two gangers in charge of them for an explanation. The apology offered by the defendant before the trial was regarded as totally inadequate. At the trial it was stated that as a result of inquiries made by the defendant, he was quite satisfied that the allegations made against plaintiffs were entirely untrue, that he regretted the pain which his report to the company had caused them to suffer, and undertook not to repeat the allegations.

Henry Spurrier Memorial Scholarships and Grants.—The council of the Institute of Transport invites applications for the award in August, 1945, of (i) two Henry Spurrier Memorial Scholarships not exceeding £250 and £150, respectively; and (ii) at least five Henry Spurrier Memorial Grants not exceeding £20 each. It is stated that it is desirable that candidates for the scholarships should have passed the graduateship or associate membership examination of the Institute or some professional or academic examination acceptable to the council. The scholarships may be awarded to assist in meeting expenses to be incurred in (i) travel for the purpose of studying road transport; (ii) specific projects of research in or in connection with road transport; or (iii) full-time study in subjects connected with, or ancillary to, road transport, at a university or other educational institution approved by the council. A candidate who has been awarded a scholarship is not precluded from applying for a grant in a later year. Grants may be awarded to assist students who need financial aid to advance their education in road transport; in the purchase of books and instruments; in the payment of educational fees; and in the payment of travelling or other expenses to be incurred for approved educational purposes connected with road transport. A candidate who has been awarded a grant is not precluded from applying for a grant or scholarship in a later year. Applications must be made on a form to be obtained from the Secretary, Institute of Transport, 15, Savoy Street, London, W.C.2, with whom the completed form must be deposited not later than May 31, 1945, and from whom further information may be obtained.

Contracts and Tenders

Below is a list of the orders placed recently by the Egyptian State Railways:—

Alldays & Onions Limited: Anvils, hand tools (bench vices).
Tools & Instruments Limited: Hand vices.
C. & J. Hampton Limited: Pipe wrenches.
British Metallic Packings Co. (1933) Ltd.: Metallic packing rings.
Pickford Tool Co. Ltd.: Taps.
Easterbrook Allcard & Co. Ltd.: Drills.
Bellingham & Stanley Limited: Laboratory apparatus.
A. Balfour & Co. Ltd.: Drills and saws.
C. C. Wakefield & Co. Ltd.: Cylinder units.
Joseph Steel & Sons Ltd.: Springs.
J. Stone & Co. Ltd.: Spares for A.C.F.I. feed water heater and thermometers.
Gresham & Craven Limited: Injectors, etc.
The Associated Locomotive Equipment Limited: Caprotti spares, etc.
Negretti & Zambra: Thermometers.
Charles Richards & Sons Ltd.: Spindles.
Buck & Hickman Limited: Hand tools (vices).
Spear & Jackson Limited: Saws.

Forthcoming Meetings

November 25 (*Sat.*).—Permanent Way Institution, Manchester & Liverpool Section, in the Railway Mission Hall, Corporation Street, Preston, 3.15 p.m. Two lectures: (1) "Derailments," by Mr. S. H. Wilde; (2) "Rail lubrication," by Mr. A. Lloyd Owen.

November 28 (*Tue.*).—Institution of Civil Engineers, Great George Street, Westminster, S.W.1, 5.30 p.m. Ordinary meeting. Paper: "The design of land airports for medium and long-distance civil air transport," by Mr. A. Shaw Maclaren.

November 29 (*Wed.*).—Institute of Welding, at the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, 6 p.m. Paper: "Hardsurfacing by welding," by Mr. M. Riddihough, M.Met., A.R.I.C.

November 30 (*Thu.*).—The Institution of Locomotive Engineers, general meeting at the Hall of the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 5.30 p.m. "The relationship between smokebox and boiler proportions," by Mr. D. W. Sanford, B.A. (Member).

December 1 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1, 5.30 p.m. Informal meeting. Paper: "Mechanical engineering problems of London Transport," by Mr. W. S. Graff-Baker.

December 4 (*Mon.*).—The Society of Engineers, in the apartments of the Geological Society, Burlington House, W., 5 p.m. Ordinary meeting. A display of films on, "The welding of aluminium," preceded by a short lecture by E. S. Waddington, M.S.E., M.Inst.W., A.M.I.E. (S.A.), Associate I.E.E. (S.A.), and followed by a Paper entitled, "Light alloy welding," by Dr. H. G. Taylor, D.Sc. (Engg.), D.I.C., A.M.I.E., F.Inst.P.

Railway Stock Market

British Funds were firmer with fractional gains predominating, but there was only a moderate volume of business in stock markets generally, although the tone was firm, with very little selling in evidence. Sentiment was assisted by the war news. Railway stocks attracted less attention, and movements generally have been small on balance, apart from French railway sterling bonds, which advanced further, stimulated by General de Gaulle's encouraging statement on the French economic position and outlook. The market is taking the view that resumption of payment on these bonds may be hastened with the development of close co-operation between France and the other United Nations; and that bearing in mind the accumulated arrears, which equal nearly 30 points in the case of Nord 6 per cent., and nearly 20 points in the case of Midi and Orleans 4 per cents., prices may have scope for further improvement, despite their big rise.

Home rails were a quieter market, but recent gains have been largely maintained; the prevailing view is that the control agreement will run for four or possibly five years, and that as time proceeds, the large yields on the junior stocks seem bound to attract increasing demand. Second thoughts on the Argentine railway position and the statements in the House of Commons induced more caution in regard to Argentine railway stocks, which showed a general reaction, losing part of their recent advance. The market is hopeful that the forthcoming annual statements of the chairmen of the Argentine railways will do much to clarify the position and outlook. Recent developments have increased the belief that the British Government realises that the Argentine railways have been treated very unfairly for many years, and that action to protect our overseas investments will be taken when conditions are considered appropriate. Argentine railway debentures have lost part of recent gains, but the rather lower prices tended to bring in buyers on the hope that latest developments should improve the position of debenture stocks generally. On the other hand, preference and ordinary stocks failed to show recovery from an earlier reaction.

Compared with a week ago home rail juniors were little changed; but prior charges again improved, yields on the latter still having an attractive appearance compared with the return on other front-rank investments. Great Western ordinary was 59¼, compared with 59¾ a week ago; the 5 per cent. preference moved up to 119, while the guaranteed stock gained a further point at 131½, and the 4 per cent. debentures strengthened anew to 117. Whereas L.M.S.R. ordinary eased from 31¼ to 31⅛, the senior preference further improved to 79, and the 1923 preference to 60½, the guaranteed stock also strengthening to 105½, and the 4 per cent. debentures to 109¼. L.N.E.R. first preference was better at 61¼, but the second preference eased from 33⅛ to 32⅞. L.N.E.R. debentures showed further improvement; the first guaranteed was also fractionally higher at 102½. Among Southern stocks, the deferred was 25⅜, compared with 25¾ a week ago, although the preferred at 76½ was unchanged on balance; the 5 per cent. preference was 118½, a gain of a point, and guaranteed and preference stocks also moved higher. Elsewhere, London Transport "C" was fractionally better at 68¼, with the "A" and "B" stocks reflecting the upward trend in front-rank investment issues.

In the Argentine section, B.A. Gt. Southern went back from 13½ to 13, the 5 per cent. preference from 27½ to 26¾, and the 4 per cent. debentures from 63½ to 63, the latter, however, representing a partial recovery, 62½ having been touched earlier. Central Argentine 5 per cent. debentures reacted from 64 to 61½, and the 4 per cent. debentures from 58 to 55½. B.A. Western 4 per cent. debentures were 56½ compared with 57½ a week ago. Central Uruguay debentures also failed to hold earlier gains. Antofagasta preference at 43 put on a further point. San Paulo ordinary was maintained at 54. Among French rails, Nord reached par for the first time since the collapse of France, with Midi and Orleans moving up to 84½. Canadian Pacifics eased slightly to 14⅝.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1942/3	No. of Weeks	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1943	Prices: Lowest 1943	Prices: November 21, 1944	Prices: Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	12.11.44	28,210	– 5,060	45	1,305,500	1,302,400	+ 3,100	Ord. Stk.	15¾	10	12½	Nil
	Argentine North Eastern ...	753	11.11.44	19,308	+ 3,162	19	323,784	277,326	+ 46,458	,,	7⅜	5	6	Nil
	Bolivar	174	Oct., 1944	5,500	+ 356	43	53,255	52,813	+ 442	6 p.c. Deb.	22½	18	15½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	23½	19	18½	Nil
	Buenos Ayres & Pacific ...	2,773	11.11.44	127,200	+ 22,800	19	2,220,960	1,791,900	+ 429,060	Ord. Stk.	8½	5½	6	Nil
	Buenos Ayres Great Southern	5,080	11.11.44	183,660	+ 8,040	19	3,164,880	2,951,340	+ 213,540	Ord. Stk.	17⅛	9½	13	Nil
	Buenos Ayres Western ...	1,924	11.11.44	63,840	+ 7,860	19	1,235,460	987,000	+ 248,460	,,	16	9⅞	11½	Nil
	Central Argentine	3,700	11.11.44	166,941	+ 12,366	19	3,218,595	2,636,019	+ 582,576	,,	10¾	6½	9	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4½	3	5	Nil
	Cent. Uruguay of M. Video	972	11.11.44	30,582	– 4,200	19	581,370	623,164	– 41,794	Ord. Stk.	7⅜	4½	5	Nil
	Costa Rica	262	Sept., 1944	20,986	– 2,141	13	74,301	72,034	+ 2,267	Stk.	16	12½	16½	Nil
	Dorada	70	Oct., 1944	28,028	+ 6,228	43	265,443	218,607	+ 46,836	1 Mt. Deb.	96	92	100½	£5 19/5
	Entre Rios	808	11.11.44	22,950	+ 3,570	19	427,620	390,180	+ 37,440	Ord. Stk.	9	5½	6	Nil
	Great Western of Brazil ...	1,030	11.11.44	28,000	+ 6,400	45	975,500	743,900	+ 231,600	Ord. Sh.	59/9	24/4½	28,9	Nil
	International of Cl. Amer. ...	794	Oct., 1944	$481,040	– $30,526	43	$6,280,959	$6,023,847	+ $257,112	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	2¾	1⅛	1	Nil
	La Guaira & Caracas... ...	22¾	Oct., 1944	6,887	– 13	43	78,218	83,360	– 5,142	5 p.c. Deb.	90	80	79½	£6 5/9
	Leopoldina	1,918	11.11.44	41,648	– 720	45	2,110,944	1,592,783	+ 518,161	Ord. Stk.	7¾	4	5	Nil
	Mexican	483	7.11.44	ps. 458,400	+ ps. 68,900	18	ps. 8,862,200	ps. 7,430,500	+ ps. 1,431,700	Ord. Stk.	1⅛	⅜	⅜	Nil
	Midland Uruguay	319	Sept., 1944	15,947	– 862	13	51,011	47,924	+ 3,087	—	—	—	—	—
	Nitrate	382	15.11.44	11,432	+ 2,656	45	161,156	137,471	+ 23,685	Ord. Sh.	83/9	71/3	72/6	£3 19/0
	Paraguay Central	274	10.11.44	£59,374	+ £10,424	19	£1,104,552	£1,037,810	+ £66,742	Pr. Li. Stk.	75	51½	74	8½
	Peruvian Corporation ...	1,059	Oct., 1944	132,500	+ 29,682	17	508,152	417,026	+ 91,126	Pref.	17⅜	10½	10½	Nil
	Salvador	100	Sept., 1944	c 72,000	+ c 3,000	13	c 247,000	c 268,000	– c 21,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	71	57	54	£3 14/1
	Taltal	156	Oct., 1944	2,495	– 2,850	17	10,735	22,250	– 11,515	Ord. Sh.	37/6	20/-	15/-	Nil
	United of Havana	1,301	11.11.44	41,461	– 1,963	19	886,147	929,937	– 43,790	Ord. Stk.	¾	3½	3	Nil
	Uruguay Northern	73	Sept., 1944	1,294	+ 11	13	4,184	4,110	+ 74	—	—	—	—	—
Canada	Canadian Pacific	17,018	14.11.44	1,230,200	+ 6,000	45	55,696,000	50,914,800	+ 4,781,200	Ord. Stk.	18	13⅞	14¾	6¼
India†	Barsi Light	202	Sep., 1944	20,820	+ 3,322	26	140,130	127,485	+ 12,645	Ord. Stk.	—	—	126½	£3 11/2
	Bengal-Nagpur	3,267	Sept., 1944	1,001,475	– 53,850	26	6,337,125	6,208,500	+ 128,625	Ord. Stk.	104¼	101¼	—	—
	Madras & Southern Mahratta	2,939	Mar., 1944	358,125	– 7,925	52	10,447,866	8,913,924	+ 1,533,924	—	—	—	—	—
	South Indian	2,349	20.12.43	199,410	+ 24,449	37	5,321,558	4,562,445	+ 750,113	—	—	—	—	—
Various	Egyptian Delta	607	10.10.44	20,696	+ 3,760	27	348,417	274,860	+ 73,557	Prf. Sh.	6 1/16	2⅜	4½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	45	32	61½	Nil
	Midland of W. Australia ...	277	Sep., 1944	20,894	– 10,375	13	60,947	101,693	– 40,746	Inc. Deb.	101	93	99½	£40/5
	Nigerian	1,900	26.8.44	241,389	– 26,773	4	—	—	—	—	—	—	—	—
	South Africa	13,301	7.10.44	940,354	+ 128,195	27	23,736,769	22,480,079	+ 1,256,690	—	—	—	—	—
	Victoria	4,774	April, 1944	1,188,999	– 212,162	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ⅛. Argentine traffics are given in sterling calculated @ 16⅔ pesos to the £

† Receipts are calculated @ 1s. 6d. to the rupee